

Read and understand
this Manual
before operating
or servicing
this equipment.

ALICLIMBER 6600 US
Technical Description
& Instruction Manual

This manual is only applicable if the manufacturing number indicated below corresponds to the manufacturing number stamped on the identification sign of the equipment. Where there is a conflict contact Your ALIMAK representative.

Manufacturing No.:

Year:

Part No. 9064 885-1 08
2001 - 05 - 10

If the bottom right corner of this book is cut, the book is only valid for illustrative use!

FOREWORD

This product is designed and manufactured to meet strict quality and safety standards. This manual is intended to provide advice and instructions to the operator and qualified service personnel so that they can safely control the situations which can occur when the product is used, and can carry out the required service and maintenance on the product.

This manual shall always be available in the box on the machine intended for this purpose.

Potential risk for user or equipment are indicated in the following way in this book:



DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



WARNING!

The equipment should not be operated if Instruction Manual is missing.

Misuse of this equipment could result in personal injury or property damage.

Photographs and drawings are illustrative only and do not necessarily show the design of the products on the market at any given point in time. The products must be used in conformity with applicable practice and safety regulations. Specifications of the products and equipment presented herein are subject to change without notice.

CONTENTS

TECHNICAL DESCRIPTION

A

TECHNICAL DATA & SPECIFICATIONS

B

IMPORTANT SAFETY INSTRUCTIONS

C

INSTRUCTIONS FOR USE

D

SERVICE AND MAINTENANCE

E

ELECTRICAL TROUBLESHOOTING

F

SETTING UP

G

MAST AND PLATFORM

H

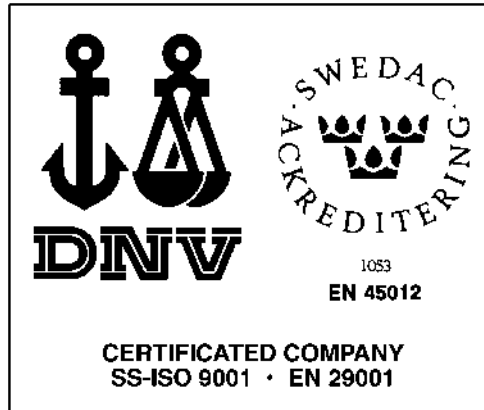
I

MAST TIES

K

TRANSPORT AND MOVEMENT

L

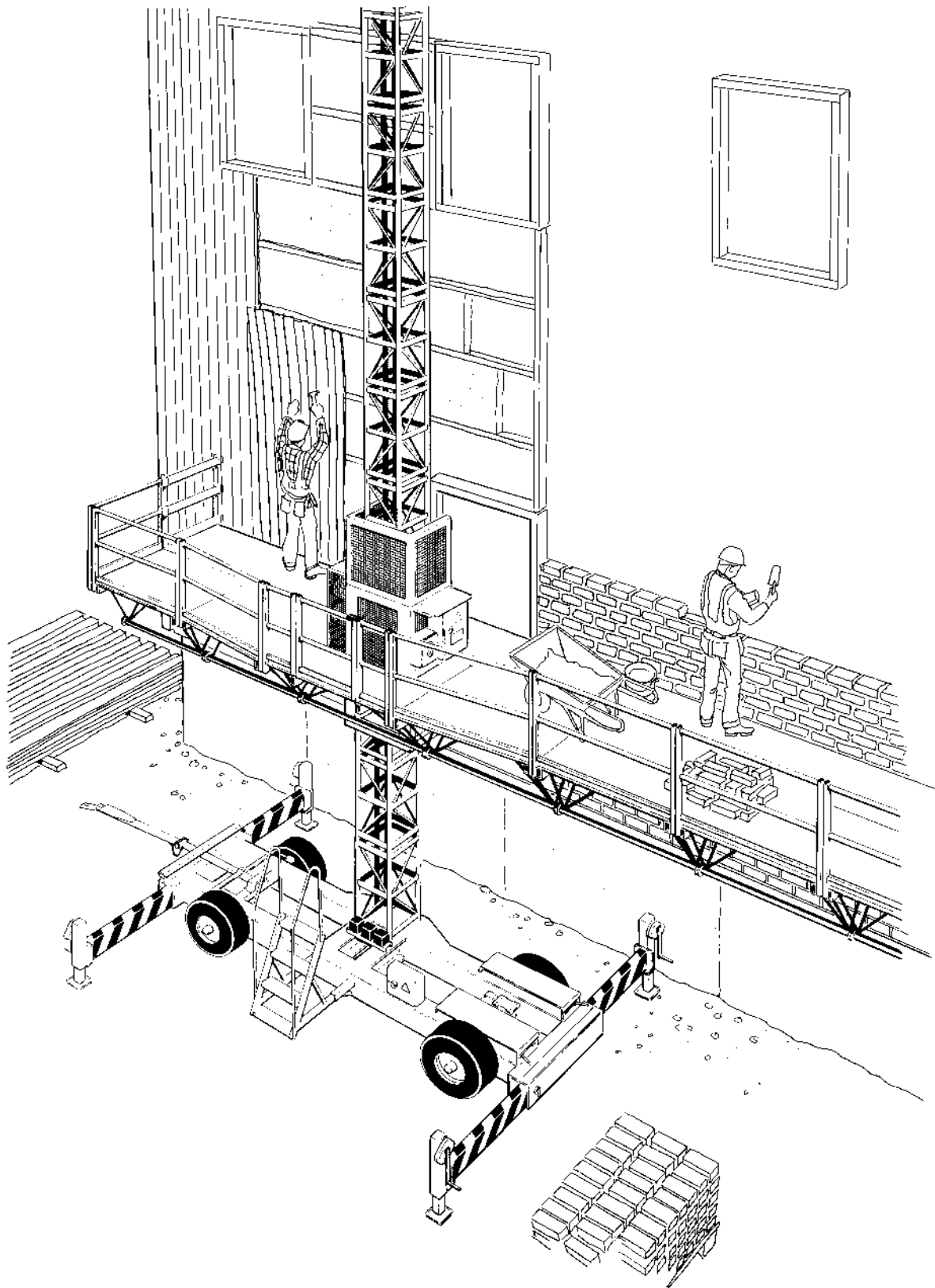


ALIMAK AB IS ISO 9001 CERTIFIED

This Certificate is valid for the following product or service ranges:

design, development, manufacture, rental and service of construction hoists, mast climbing work platforms, permanently installed lifts and equipment for shaft raising and enlarging

Introduction	A 1
Mobile chassis	A 2
Pedestal base	A 3
Mast	A 4
Central unit	A 6
Work platform	A 8
Platform extension	A 9
Stepdown platform extension	A 10
Canopy	A 11
Erection crane	A 12
Safety features	A 12
Electrical equipment	A 12
Transport and movement	A 13
Optional jib crane	A 15



Technical description

The Aliclimber is designed for the following applications:

- To carry personnel and materials efficiently and economically.
- To improve accessibility to difficult to reach areas.
- To be easily erected, dismantled, serviced, and moved about on the job site, while still maintaining high safety standards.
- To comply with applicable regulations.

Typical applications are:

- Traditional construction work such as wall repairs, plastering, and glazing.
- Bricklaying.
- Refurbishment work such as building fronts, roofs, gutters, wall cladding, and window replacement.
- Fixing cladding and sealing joints on industrial and pre-fabricated structures.
- Finish work such as touch up and installing insulation.
- Installing windows and railings.

For lifting heights up to 100 m (330 ft.)

Where required lifting height exceeds the maximum allowed mast heights, we request that you to contact ALIMAK's Calculation Department for advice.

A₂

Mobile chassis

The Aliclimber base unit is normally delivered on a rubber wheeled mobile chassis with or without optional horizontal drive equipment for two of the wheels.

The chassis is constructed of steel profiles and is equipped with four telescopic outriggers and mechanical jacks to level and stabilize the work platform. It is also not necessary to chock up the work platform for lifting heights under 100 m (330 ft.).

Rubber buffers are located on the chassis and are there in order to absorb shock during transport. They also serve to absorb shock should the system brakes malfunction.

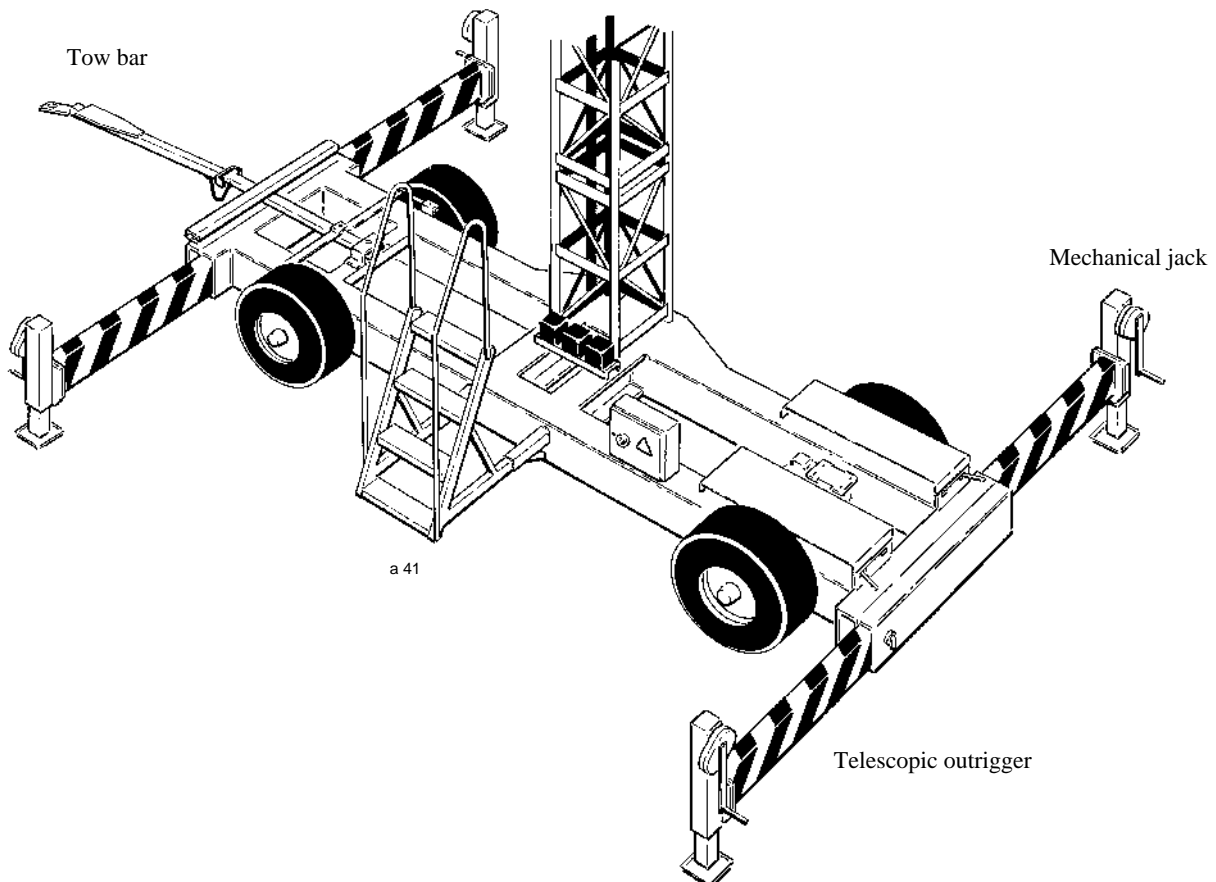
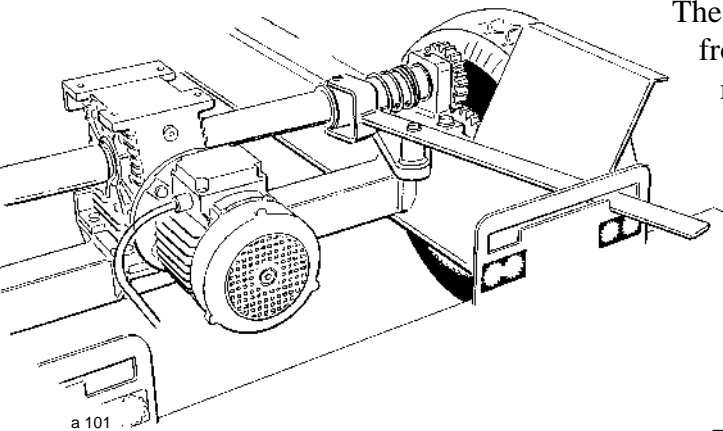
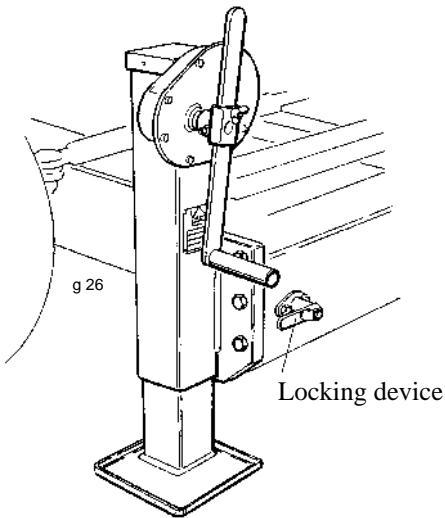
Tall free standing heights can be achieved due in part to the mast sections' strength and the rigidity of the chassis.

The chassis is equipped with "Ackerman" steering at the front end and along with the tow bar makes it easy to manually steer the work platform on the job site.

The tow bar on self propelled chassis is equipped with a forward and reverse shifter for the horizontal movement.

The chassis rear wheels are individually engaged to the horizontal drive machinery by means of a lever located near the wheels. This is particularly useful when negotiating curves.

The chassis is equipped with brackets for a stair case.



Pedestal base

The pedestal base should be used in place of the mobile chassis in the following conditions:

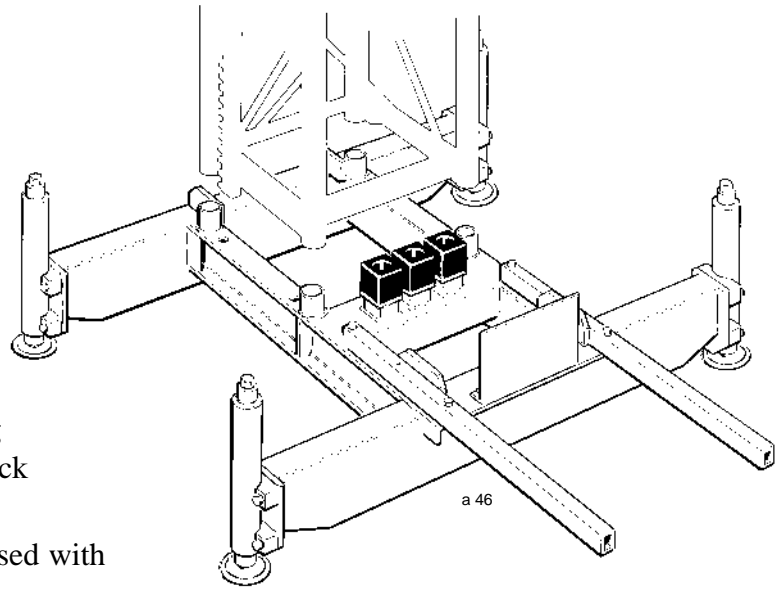
- Confined areas.
- High lifting heights.
- During longer construction periods.
- Where weight is of consideration, i.e. the structure bearing the Aliclimber can only take limited bearing loads.

The pedestal base is constructed of steel profiles and is equipped with four manual jacks to level and stabilize the Aliclimber.

Rubber buffers are located on the chassis and are there in order to absorb shock during transport. They also serve to absorb shock should the system brakes malfunction.

Free standing Aliclimbers must **NEVER** be used with a pedestal base.

When the Aliclimber pedestal base is to be used the bottom mast section must include a rack.



New mast section
manufactured during and after 1988
110 mm (= 4.33 in.)

Mast

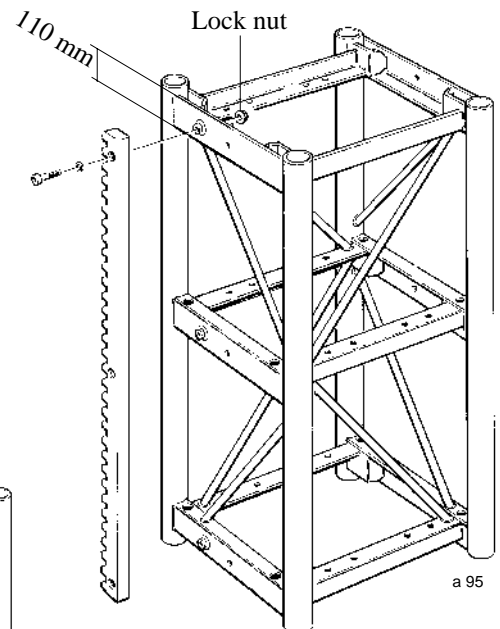
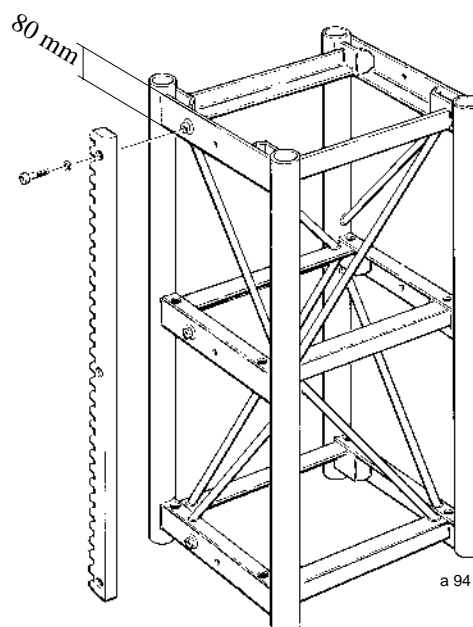
The mast comes in lengths of 1508 mm (4 ft. 11 3/8 in.) and is bolted together to form a mast tower of desired length.

Each mast is equipped with a boltable, precision cut rack of module 8. The rack is made of special steel and designed to withstand the forces applied to it.

The mast sections manufactured after 1988 are identical to those used for Alimak's construction hoists. It is therefore possible to use these Alimak hoist mast sections with the Aliclimber.

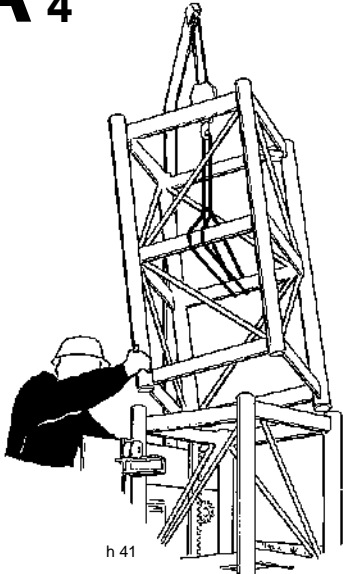
Construction hoist sections manufactured before 1988 must not be used with the Aliclimber. To identify the proper post 1988 section, see figures below.

All mast sections come galvanized with the exception of the rack.



Old mast section
manufactured before 1988
80 mm (= 3.15 in.)

A₄



Up and down limit cams are located at the top and bottom of the mast and act on the normal limit switches located on the work platform. These provide safe and automatic stopping at the normal terminal positions of the platform.

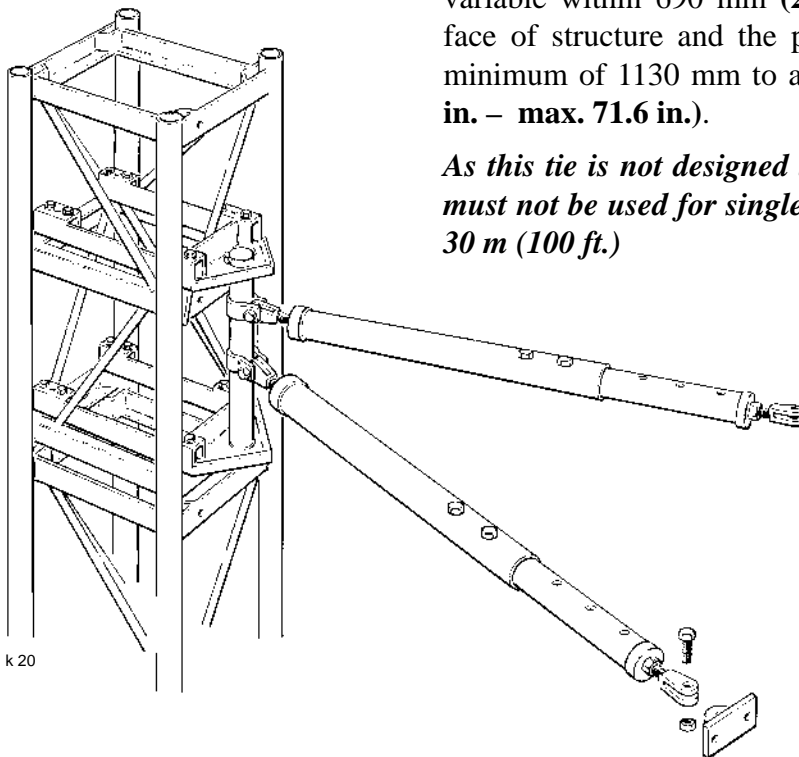
Additional protection is provided by means of a final limit switch with its cams located a minimum prescribed distance above and below the normal limit positions. Activation of this switch removes power to the platform should some fault occur with the normal switches.

Mast ties come in three different types and are used to tie the platform at greater lifting heights or when using some of the available options that reduce the equipments allowable free standing height, (i.e. canopy, pedestal base, etc.)

Mast tie type 31

This tie is primarily used for twin masted installations. The tie is telescopic variable in the vertical direction. The tie width varies depending on the chosen length of the tie, which is variable within 690 mm (27.2 in.). The distance between the face of structure and the platform for this tie type is from a minimum of 1130 mm to a maximum of 1820 mm (min. 44.5 in. – max. 71.6 in.).

As this tie is not designed to take the mast torsional forces, it must not be used for single mast platforms with heights above 30 m (100 ft.)

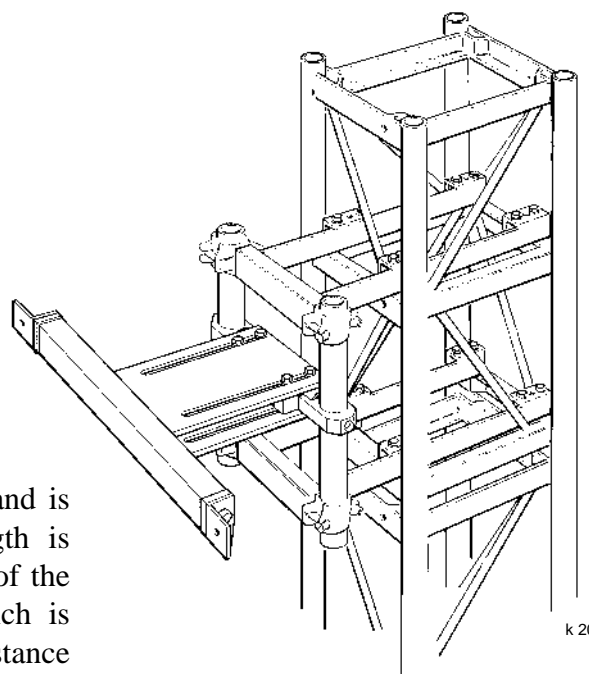
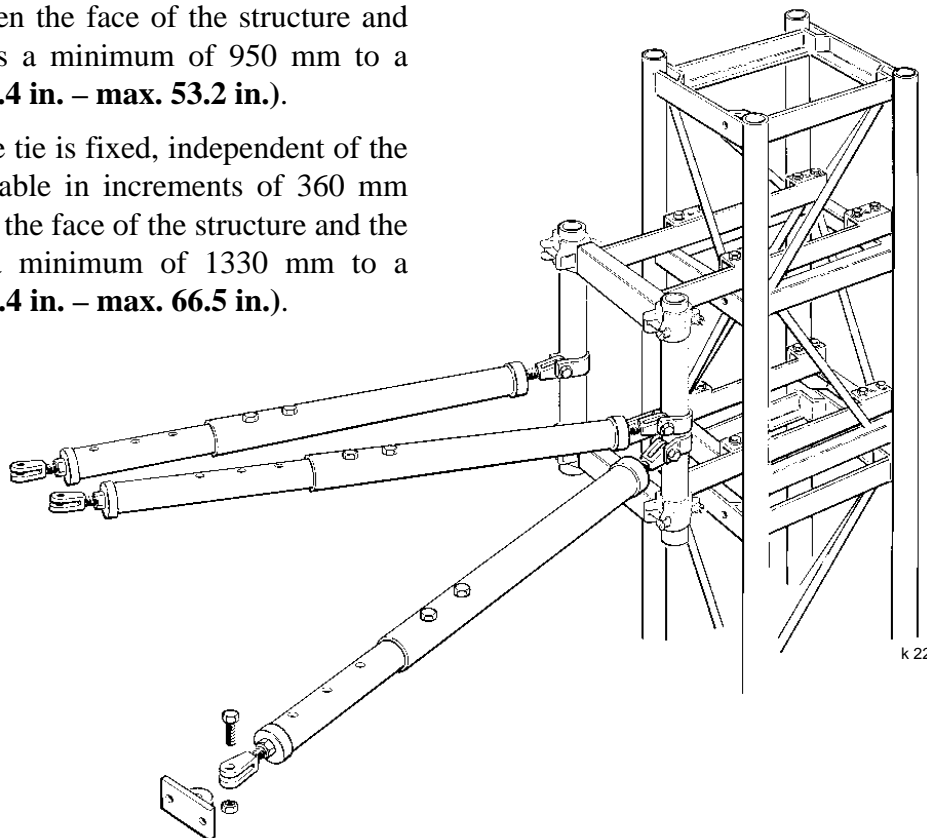


Mast tie type 32

This tie type is used for single or twin masted installations, and is designed to take mast torsional stresses. The tie length is telescopic adjustable in the vertical direction.

Type 32 Short: The width of the tie is fixed, independent of the length of the tie, which is variable in increments of 400 mm (15.75 in.). The distance between the face of the structure and the platform for this tie type is a minimum of 950 mm to a maximum of 1350 mm (min. 37.4 in. – max. 53.2 in.).

Type 32 Long: The width of the tie is fixed, independent of the length of the tie, which is variable in increments of 360 mm (14.2 in.). The distance between the face of the structure and the platform for this tie type is a minimum of 1330 mm to a maximum of 1690 mm (min. 52.4 in. – max. 66.5 in.).



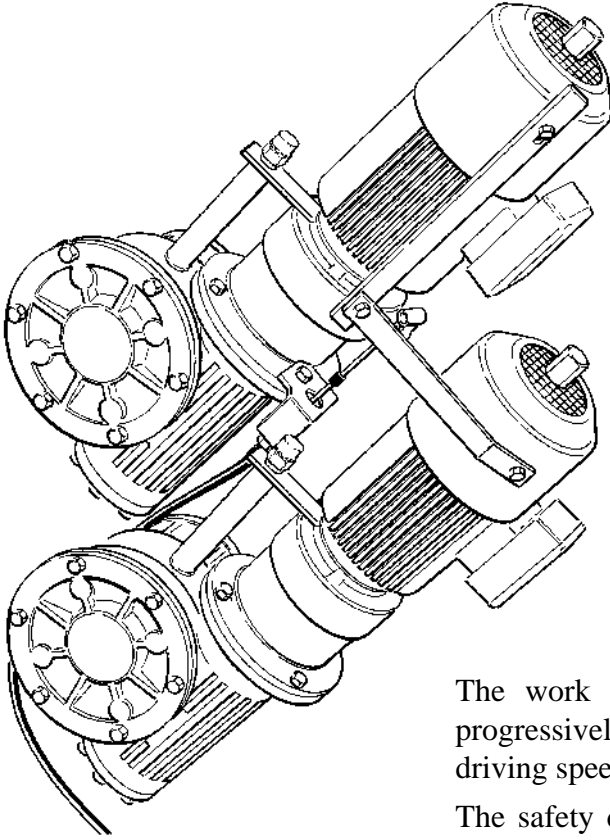
Mast tie type 23

This tie is used for single or twin masted installations, and is designed to take mast torsional stresses. The tie length is steplessly adjustable in the vertical direction. The width of the tie is fixed, independent of the length of the tie, which is variable in increments of 182 mm (7.2 in.). The distance between the the face of the structure and the platform for this tie type is a minimum of 360 mm to a maximum of 543 mm (min. 14.2 in. – max. 21.4 in.).

Central unit

The central unit is of a welded steel structure that surrounds three sides of the mast. It is held in position and guided on the mast by ball bearing guide rollers that run on the mast tubes.

The machinery consists of two electric brake motors with reduction gears. The motors are connected to worm gears that are equipped with 2 pinions that engages the mast rack.

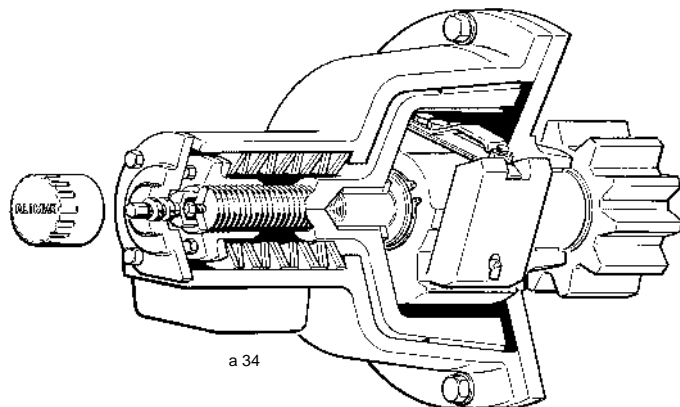


a 166

The work platform has an overspeed safety device which progressively stops the platform on the mast should normal driving speed be exceeded by a preset amount.

The safety device has a shaft with a centrifugal weight and a pinion constantly engaged with the rack on mast. When the centrifugal weight actuates, the brake cone is screwed in against a brake lining inside the safety housing. The platform is brought to a smooth stop and simultaneously the power to the drive motors is cut off.

A counter roller attached to the safety device mounting plate, ensures correct meshing of the pinion at all time. A safety hook provides additional safety in the event of the failure of the counter roller.

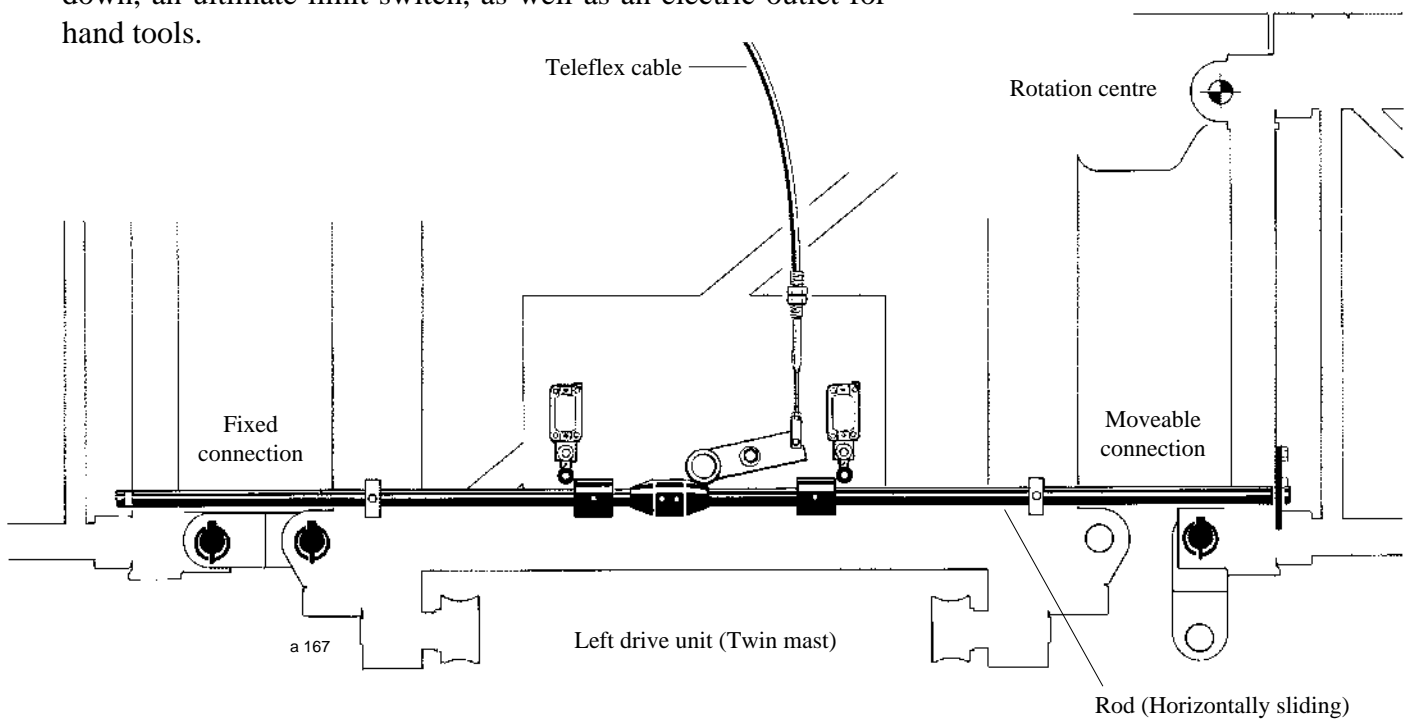


a 34

When the platform is used in the twin configuration, the drive unit is provided with electro-mechanical levelling equipment which controls and limits the inclination of the platform, from horizontal.

The levelling equipment consists of a horizontally sliding rod, which is attached to the platform modules. The platform modules are, in turn, attached to the central unit. The rod is provided with cams which act on a limit switch that controls the motors to both drive units, thereby ensuring the platform is kept level.

The same rod is also provided with a cam that acts on a mechanical arm, which by a teleflex cable, makes manual lifting of the brakes impossible if the platform angle towards the horizontal plane is too large. This brake sliding control makes it possible to safely slide down to ground level should an emergency situation occur, i.e. power failure. The central unit comes with a main electric panel, limit switches for up and down, an ultimate limit switch, as well as an electric outlet for hand tools.



Platform sections of 1.5 m or 0.8 m (**4 ft. 11 in. or 2 ft. 7.5 in.**), with associated railings, can be attached to either side of the central unit. This makes it possible to adapt the platform length to the job.

Also delivered with the central unit are two 1.5 m platform sections with railings (installed), 2.2 m (**7 ft. 2.5 in.**) of mast, the lower limit cam, the upper limit cam in combination with the lifting yoke, removeable mast protection, electrically interlocked mesh cover for the drive unit, railings for the platform ends, and an mechanically and electrically interlocked gate complete with stair case.

A 8

Work platform

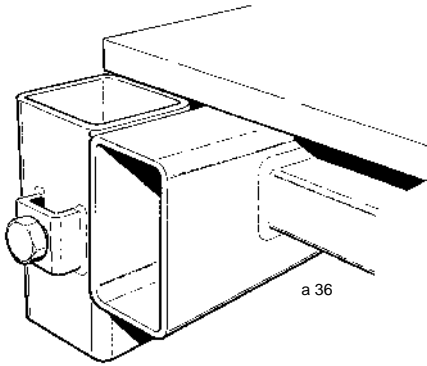
The platform consists of 830 and/or 1508 mm (**2 ft. 7.5 in. and / or 4 ft. 11 in.**), long sections, with a width 1.5 m (**4 ft. 11 in.**), and are constructed of steel pipes and structural tubes.

The Aliclimber platform sections are equipped with a floor of weather treated anti-skid plywood.

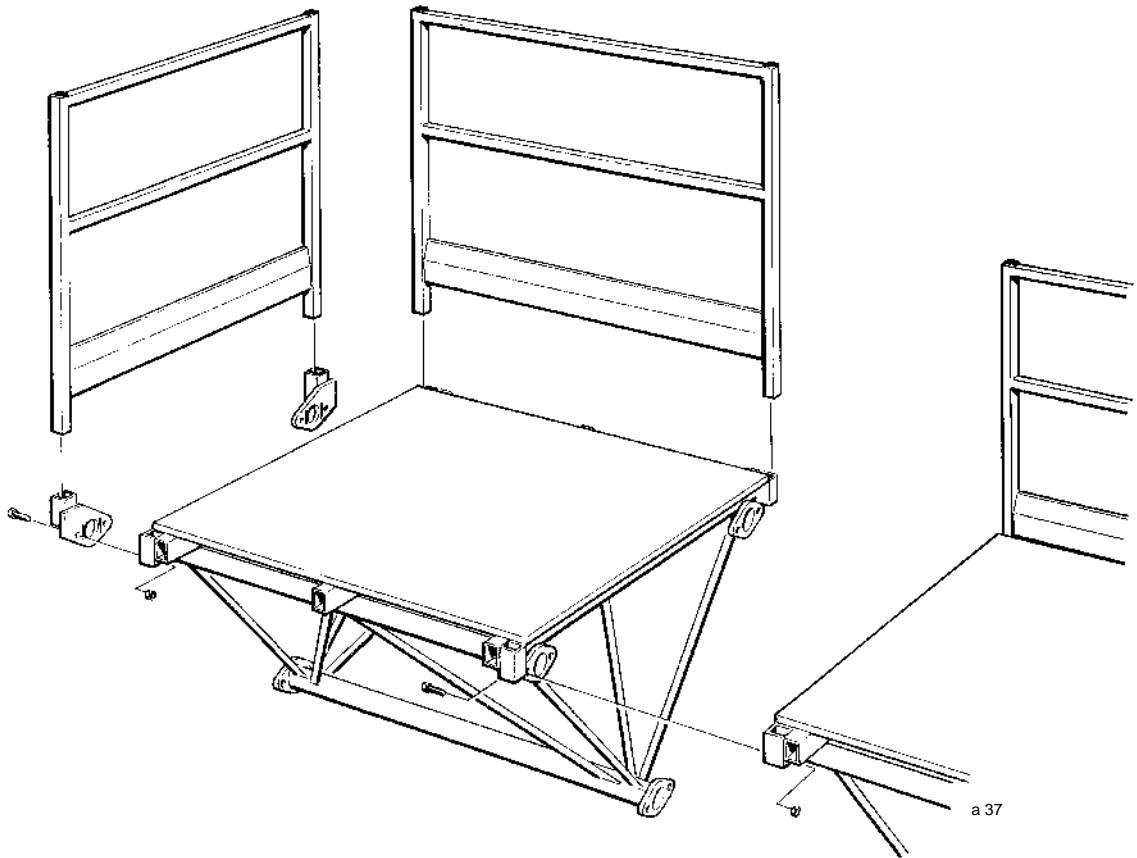
The platform sections are bolted together to achieve a length from 4.5 m (**15 ft.**) to 18 m (**60 ft.**) in a single mast installation. In a twin mast installation the length of the platform can vary from 12 m (**40 ft.**) to 36 m (**119 ft.**).

The railing, which is constructed of galvanized steel pipe, is mounted in brackets located at each corner of the platform section and locked into place with a bolt.

The railing comes equipped with a kickplate.



Safety railing bracket with lock screw



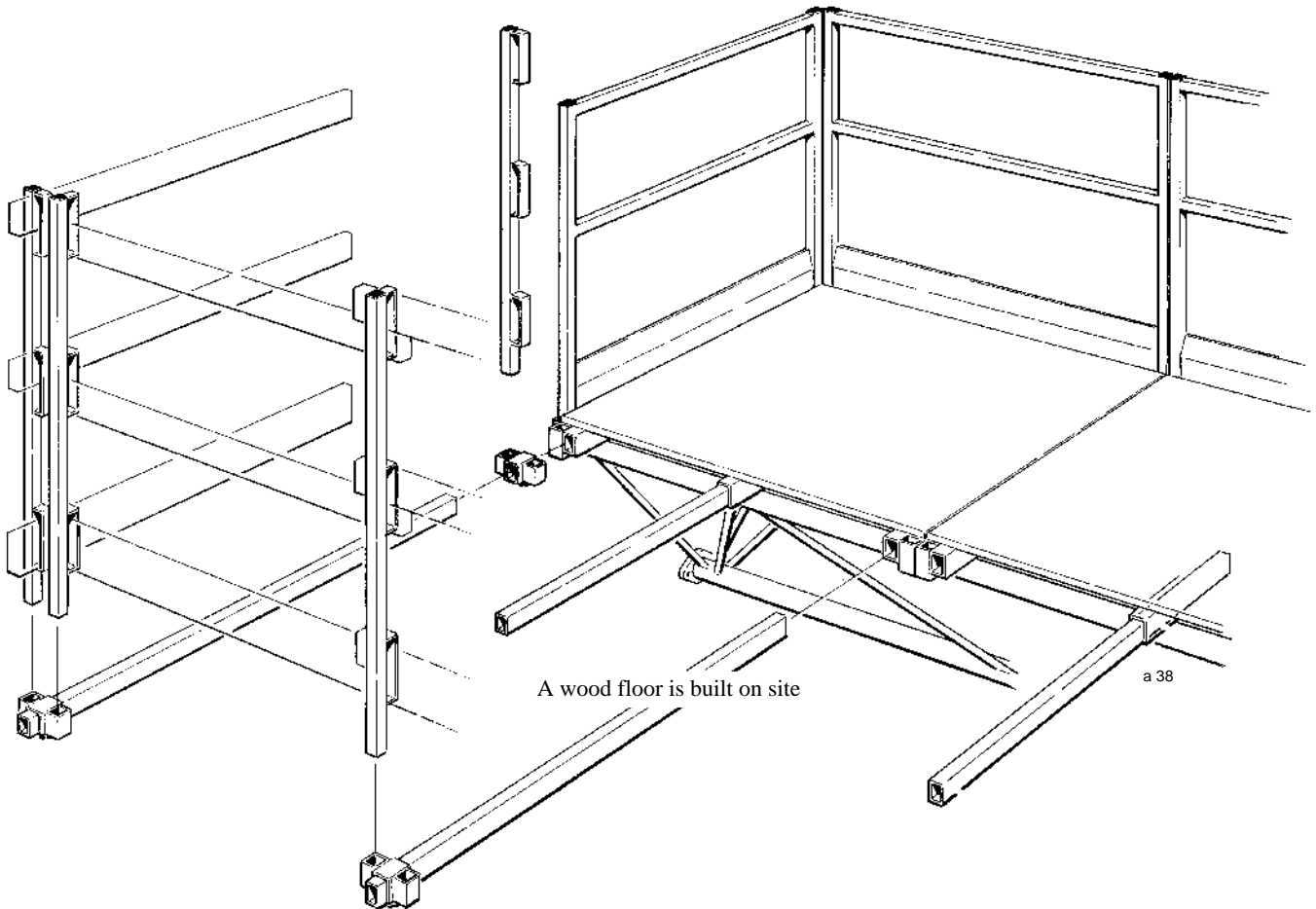
The railing with gate for entering and exiting of the platform is constructed of galvanized steel pipe and is 1508 mm (**4 ft. 11 in.**) wide. Entrance width is 600 mm (**1 ft. 11 5/8 in.**). It is mounted in the same manner as the railing. The gate which is manually latched and electrically interlocked, must be in a closed position in order for the platform to operate.

Platform extension

The wood floor of the platform extension is supported by structural tubes inserted into tubes forming part of the main platform section.

The extension beams are equipped with railing brackets so that safety railing can be job site built using appropriately dimensioned wooden elements.

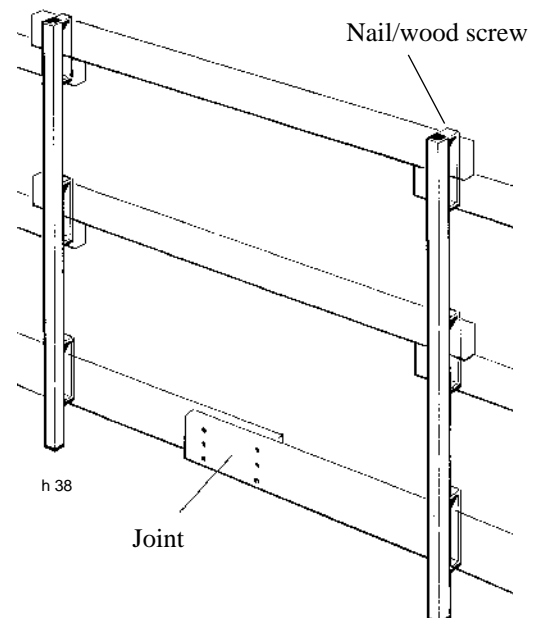
The extension beams are provided with mechanical end stops.



When extending the platform the maximum allowable live load on the platform must be reduced by the total dead weight of the extension.

Railing Cross Members

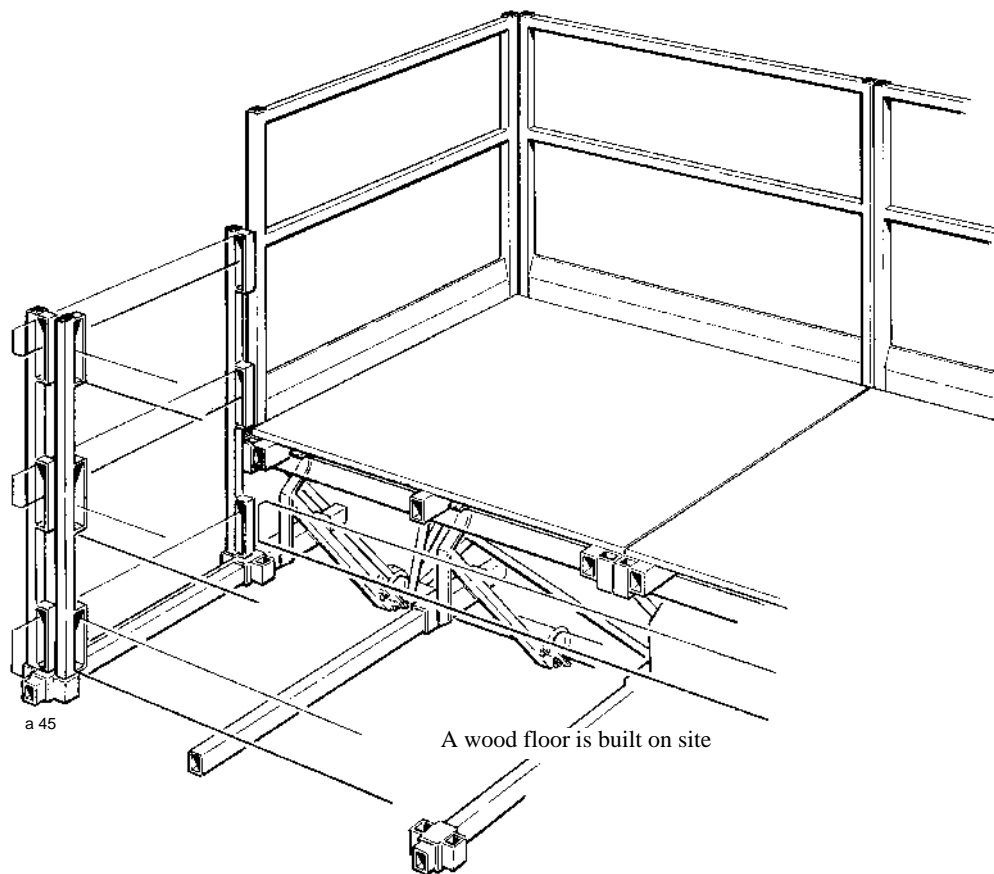
The railing cross members must be of high quality wood (for example pine or spruce) with dimensions according to applicable standard or local regulations.



Stepdown platform extension

To obtain an ergonomic working position, as an example when bricklaying, the platform can be equipped with an optional stepdown extension. The stepdown platform extension is accomplished in the same manner as the normal platform extension.

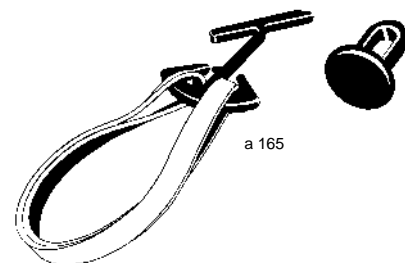
In addition to the extension beams and railing brackets for a normal extension a special step down bracket is required for the platform sections.



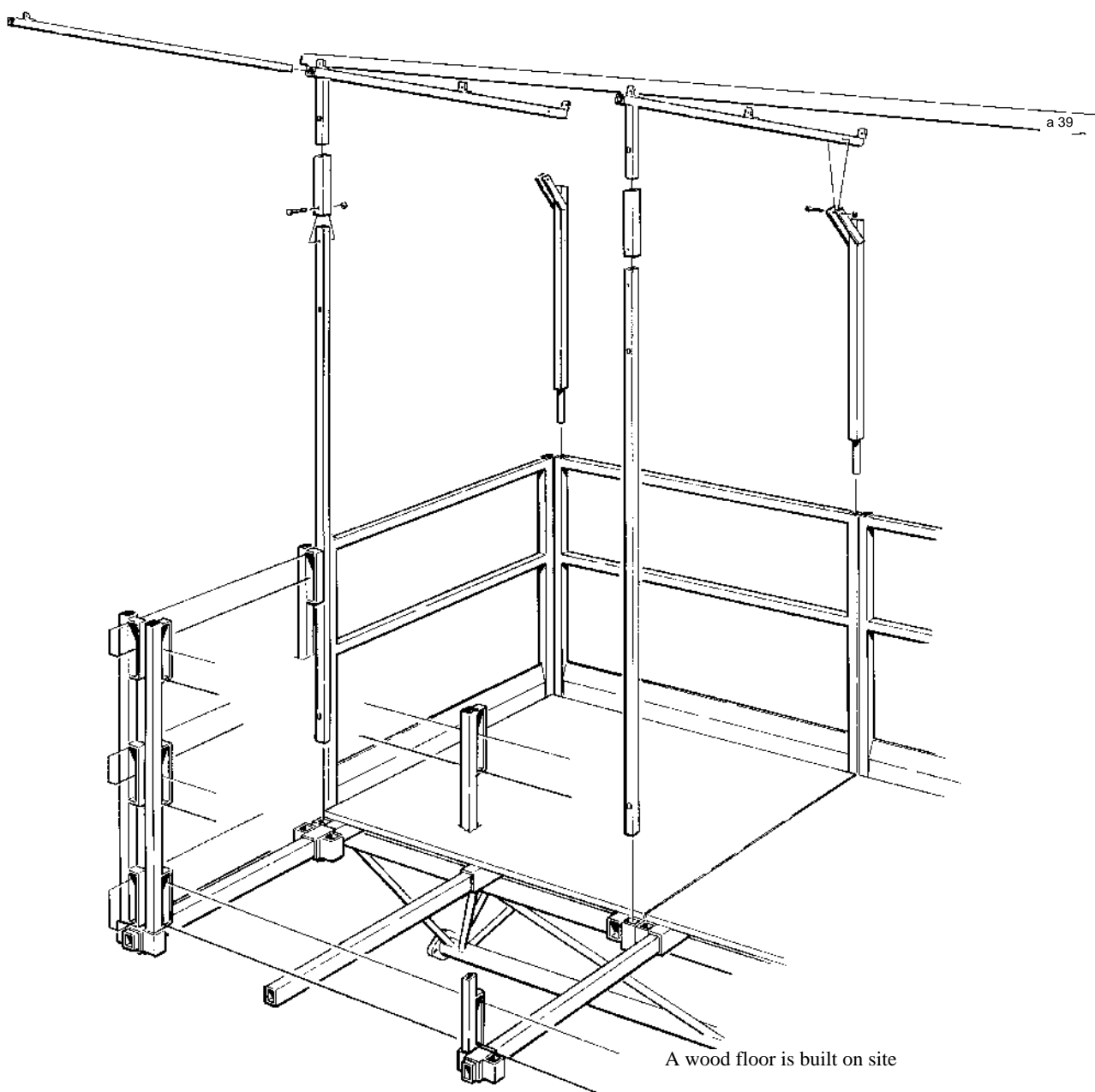
Canopy

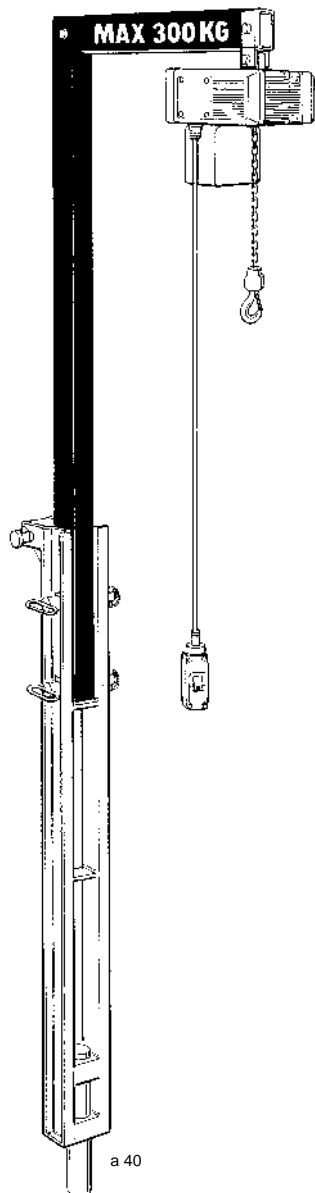
To obtain a weather protected environment the work platform can be equipped with an optional canopy. The canopy frame is constructed of square steel structural tubes and covered with an reinforced transparent plastic cloth. The cloth is rolled out in one or two sheets, cut to the appropriate length and then attached by rubber straps in four rows at intervals of 1 m (3.3 ft.), over the entire length of the canopy. Openings for the mast and/or gate can be cut out with a knife.

It is forbidden to use the canopys/weather protection with free standing Alimak Work Platforms.



Canopy frame clad with reinforced transparent plastic cloth





Erection crane

To ease handling of mast sections during erection and disassembly, an erection crane is available.

The erection crane is swung manually and can be equipped with manual or electric hoists. The erection crane is mounted to a bracket in the center of the platform.

Max. capacity of erection crane is 300 kg (**660 lbs.**).

Platform safety equipment

- Safety device which is activated on overspeed and brings the work platform to a controlled stop.
- Strategically located safety hooks make it impossible to drive over the top of the mast.
- Top and bottom final limit switch.
- 2 separate spring loaded motor brakes which requires power to be released.
- Automatic horizontal levelling for twin mast installations.
- Ability to be manually lower to ground level in the event of a power failure.
- Automatic horizontal levelling during downward sliding.
- Mechanically latched and electrically interlocked gate.
- Electrically interlocked protection cover for the machinery.
- Phase sequence relay.
- Phase sequence selector switch.

Electrical equipment

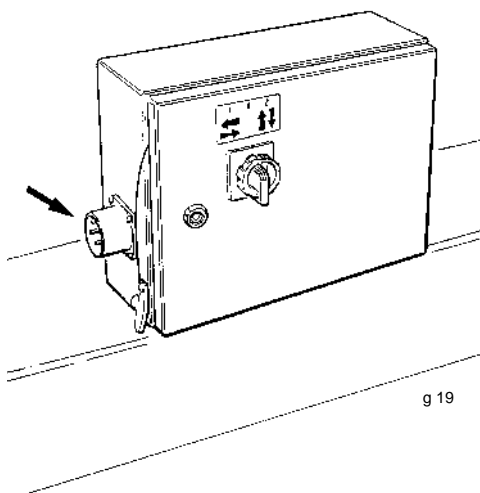
The electrical equipment for the work platform is designed and built to withstand the rough working conditions normally found on construction sites. The components are well proven and meet a number of national/international standards, such as IEC, CEE, EN, DIN, UL, CSA, SS.

Included electric material is of protection class IP 54 or higher.

Connection to power supply

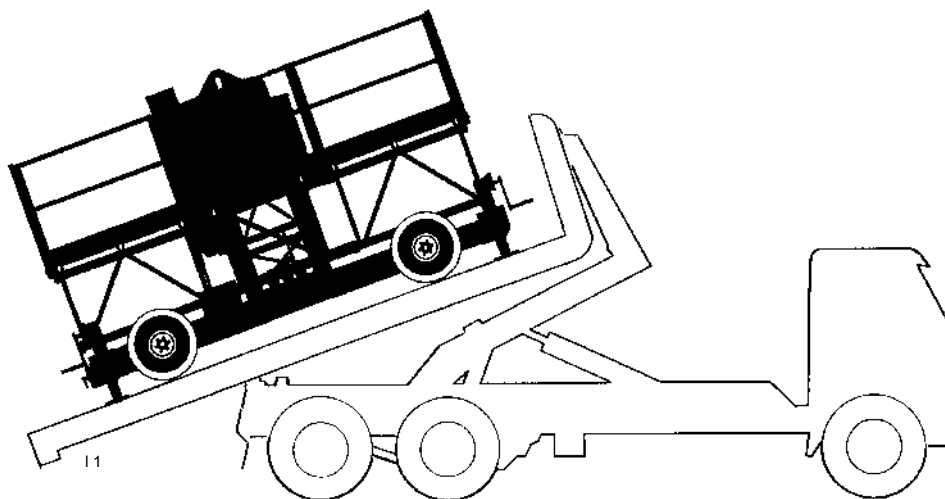
Power input connection to the chassis electrical cabinet should be made with a minimum of 5 x 2.5 mm² cable (**approx. AWG No. 14**).

When phase sequence is properly connected an indication light on the phase sequence relay in the electric panel is illuminated. If the light is not illuminated, change to the correct phase sequence by means of the change over switch inside the electric panel.



Transport and movement

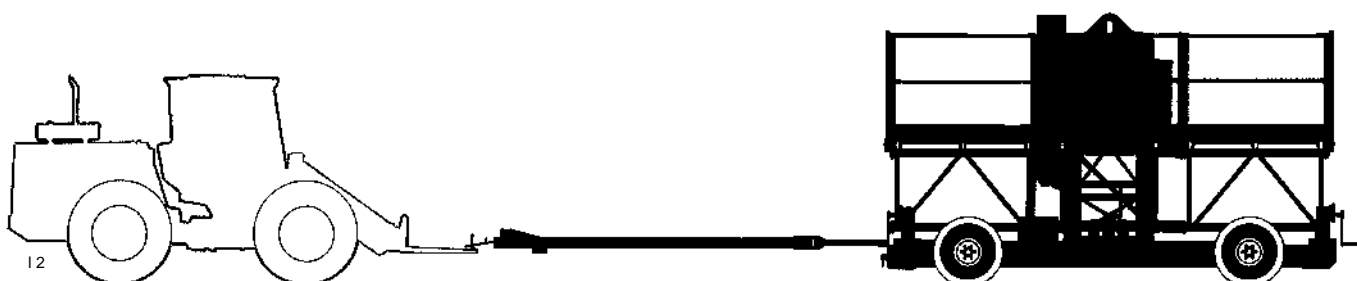
The machine can be towed or moved by its own drive unit (option) over short distances. For longer distances it is recommended that special transport vehicles be used. Only machine components, e.g. platform parts and mast sections can be left on the platform. The mast must always be dismantled during transportation on public roads.



Towing of platform without mast

The outriggers must be completely retracted and locked. The platform must also be lowered so that it rests on the rubber buffers.

Maximum allowable speed when towing is 20 km/h (**12 mph**).



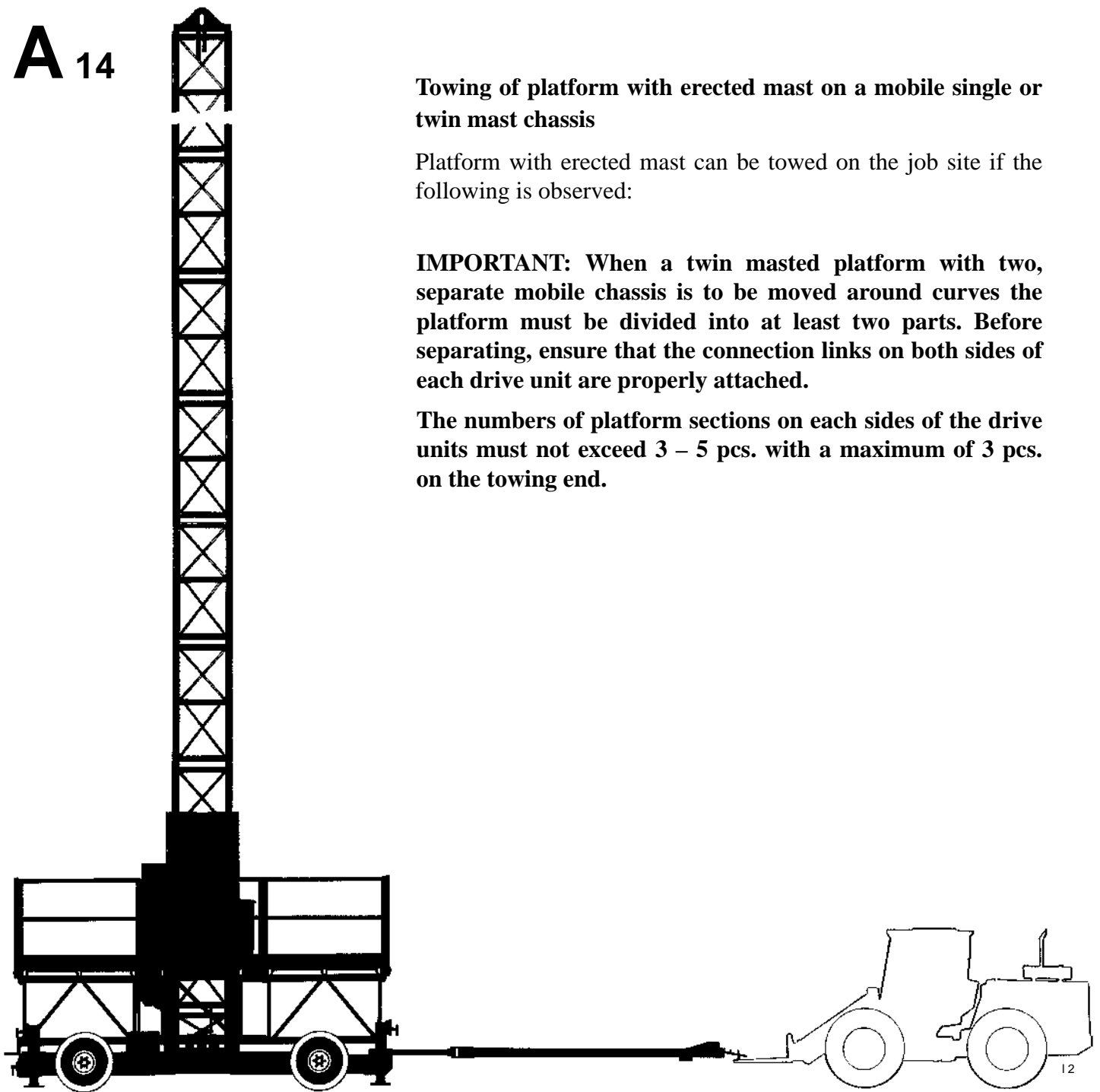
A 14

Towing of platform with erected mast on a mobile single or twin mast chassis

Platform with erected mast can be towed on the job site if the following is observed:

IMPORTANT: When a twin masted platform with two, separate mobile chassis is to be moved around curves the platform must be divided into at least two parts. Before separating, ensure that the connection links on both sides of each drive unit are properly attached.

The numbers of platform sections on each sides of the drive units must not exceed 3 – 5 pcs. with a maximum of 3 pcs. on the towing end.



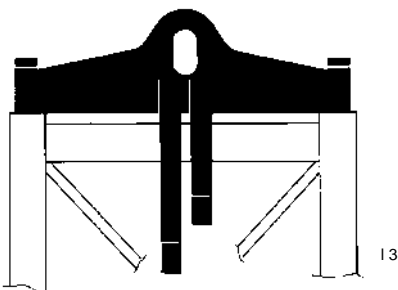
Lifting with crane

A 4.5 m (15 ft.) platform with mobile chassis (base unit) weighs approx. 5000 kg (11000 lbs.) incl. 13 mast sections.

A 4.5 m platform with mast pedestal (base unit) weighs approx. 3500 kg (7700 lbs.) incl. 13 mast sections.

With a suitable crane connected to the lifting yoke at the mast top, the platform with erected mast can be lifted and moved with a crane. The lifting yoke is designed for a maximum load of 6000 kg (13200 lbs.).

The platform must be balanced.



Optional jib crane

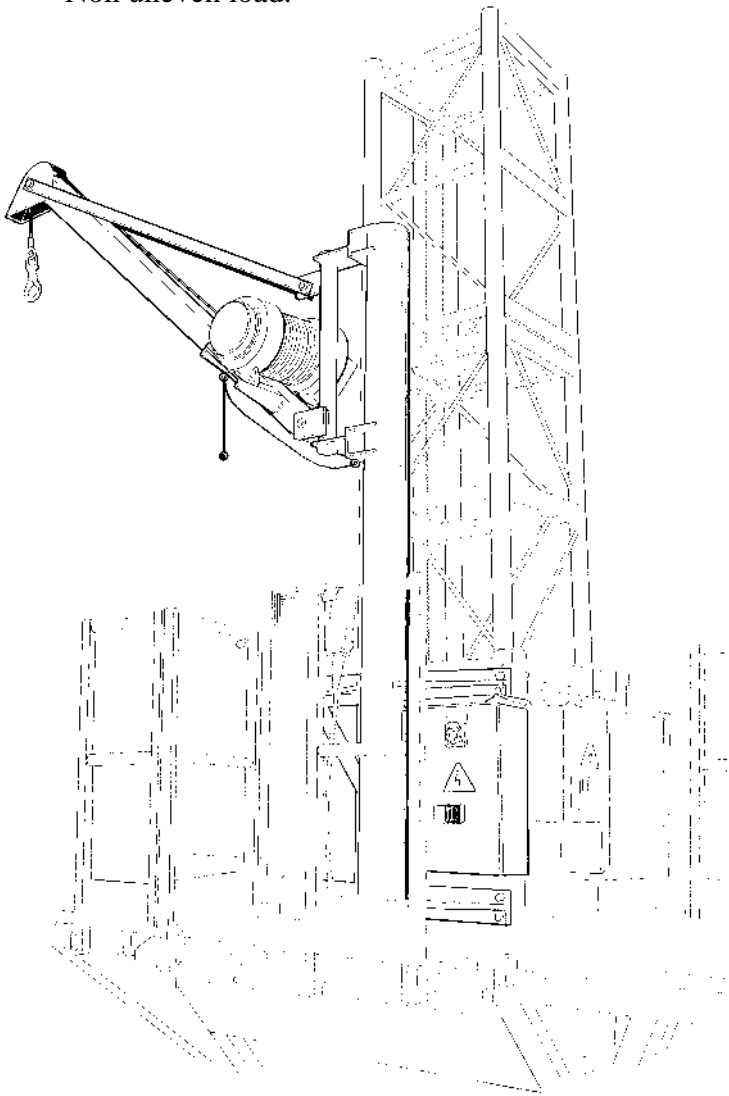
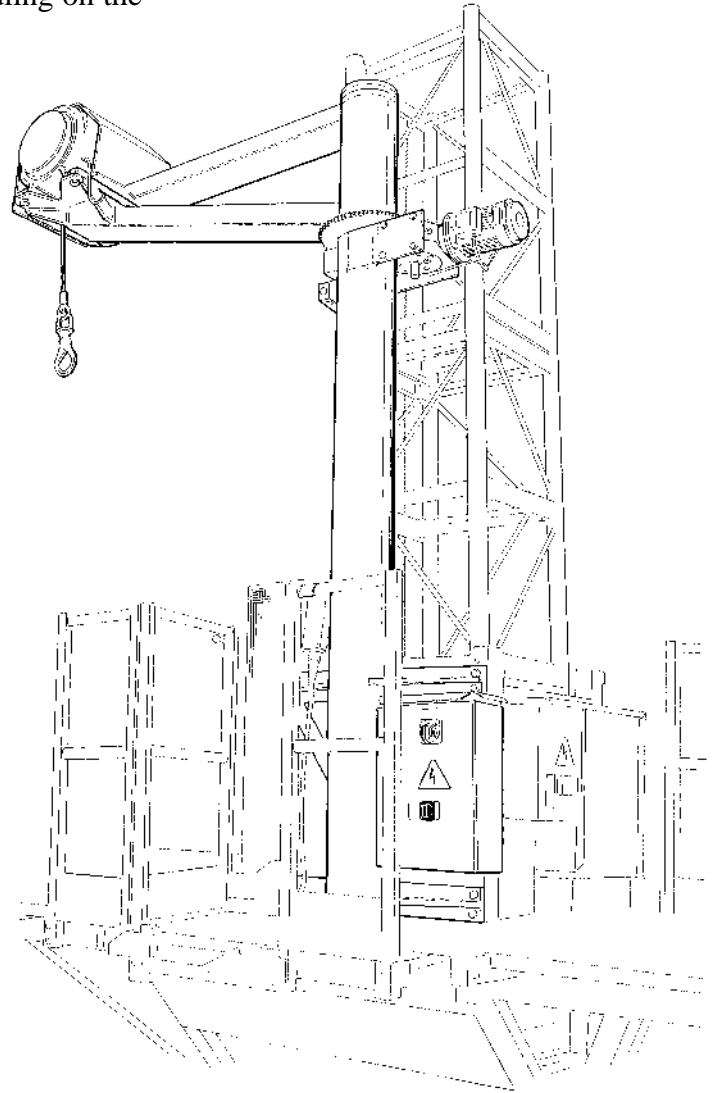
The Aliclimber jib crane is adopted for material handling on the Mast Climbing Work Platform Aliclimber 6600.

Jib crane type 1000 kg (2200 lbs.)

The loading capacity is 1000 kg (2200 lbs).
Winch speed is 15 m/min (50 fpm).
Maximum 15° uneven load.

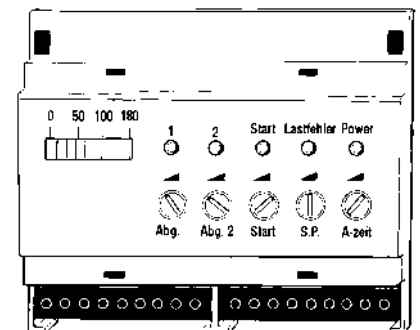
Jib crane type 300 kg (660 lbs.)

The loading capacity is 300 kg (660 lbs).
Winch speed is 21.5 m/min (70 fpm).
Non uneven load.



MCWP capacity limitations

The Aliclimber's maximum allowable load must be reduced by crane dead weight when the jib crane is installed.
When the jib crane is operating the platform allowable load must decreased = crane dead weight + jib crane allowable load.

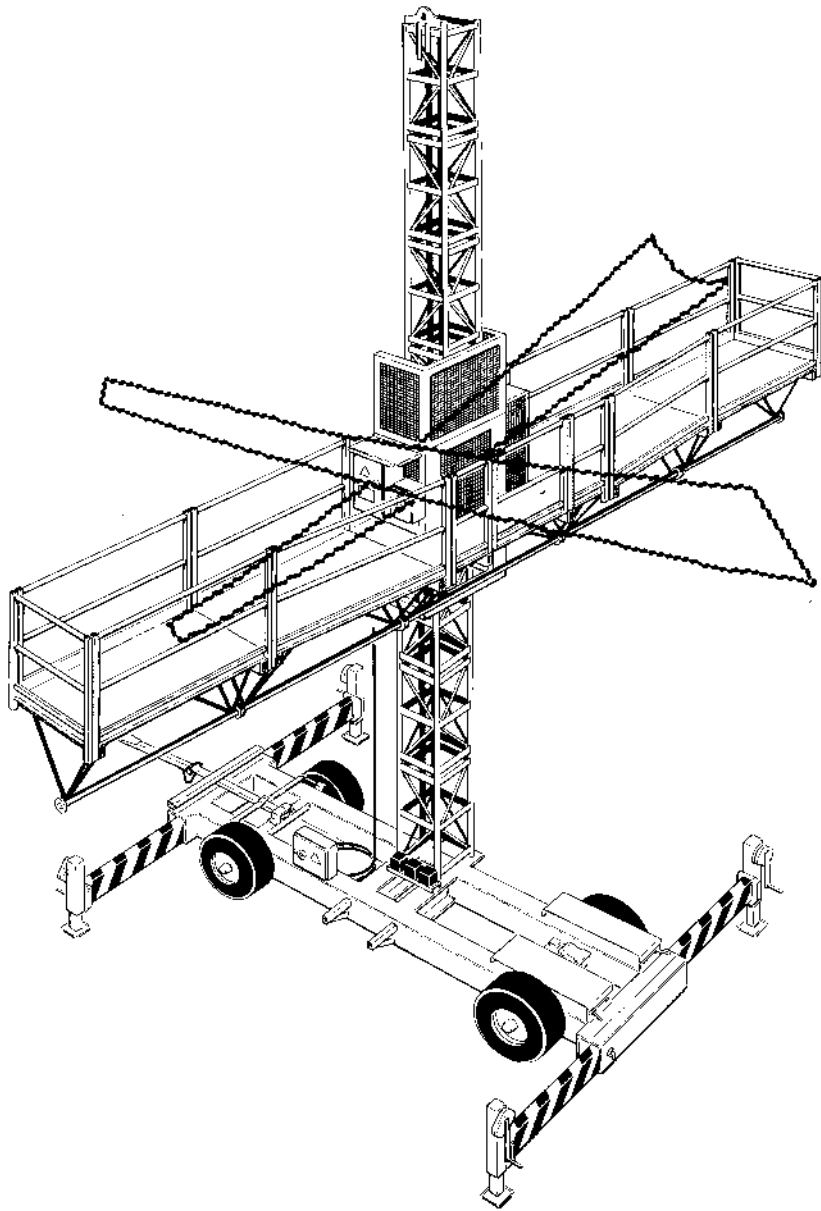


Electronic overload device with LED display inside the el. panel

Safety features

- Electronic overload device to prevent jib crane overload.
- Thermal motor protection.
- Thermal heat protection in stator windings.
- Lockable selector switch Jib Crane /MCWP. (Jib crane type 1000 kg (**2200 lbs.**) only).
- Built-in spindle limit switch.
- Spring loaded passive load brake acting when the electric motor is deenergized.
- Limit switches for jib crane slewing device.

Technical data	data sheet
Maximum allowed load	B 3
Maximum no. of persons allowed on the platform	B 6
Platform outside lengths	B 6
Stability data	B 7
Load signs	B 8
Noise level at operation	B 12
Definations	B 13
Dimensional drawings	



NOTE!

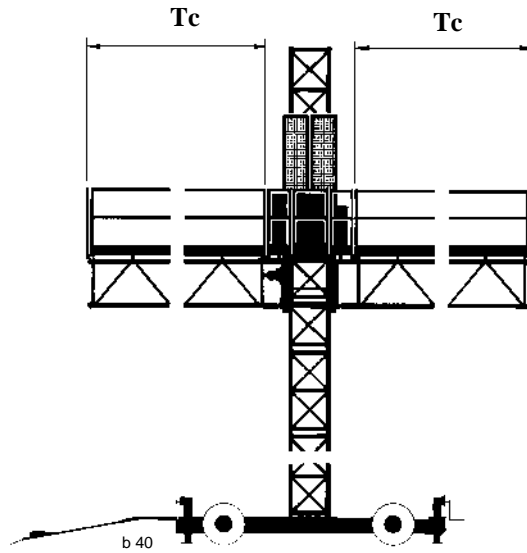
In this manual stated figures for length and maximum payload capacity are not applicable when the mast is rotated 90° on the mobile chassis.

Maximum allowed loading

The following tables show several typical load cases. For other load cases not shown, contact the nearest Alimak representative.

Figures shown in (parentheses) are valid for platforms **WITH** extension parts. This allowable load is valid only for the platform, and **NOT** for the extension part. *Note:* Loads may not be placed on the extension parts.

Maximum load – Single mast configuration



Aliclimber 6600 Single			Without platform extension			With platform extension		
Nc left	Nc right	L feet	T lbs.	Tc lbs.	Tes lbs.	T lbs.	Tc lbs.	Tes lbs.
1	1	15	7860	4490	4490	(7350)	(4390)	(4390)
1 + 1/2	1 + 1/2	20	7500	3680	3160	(6840)	(3570)	(3060)
2	2	25	7220	3120	2430	(6470)	(3010)	(2340)
2 + 1/2	2 + 1/2	30	6860	2680	1950	(5960)	(2570)	(1870)
3	3	35	6600	2350	1630	(5580)	(2240)	(1550)
3 + 1/2	3 + 1/2	40	6250	2080	1390	(5080)	(1960)	(1310)
4	4	45	5970	1870	1210	(4260)	(1750)	(1130)
4 + 1/2	4 + 1/2	50	5610	1680	1060	(4210)	(1570)	(990)
5	5	55	5300	1530	950	(3830)	(1400)	(880)
5 + 1/2	5 + 1/2	60	4980	1400	850	(3320)	(1280)	(780)

Nc = Number of cantilever platform sections

L = Platform length

T = Total payload capacity

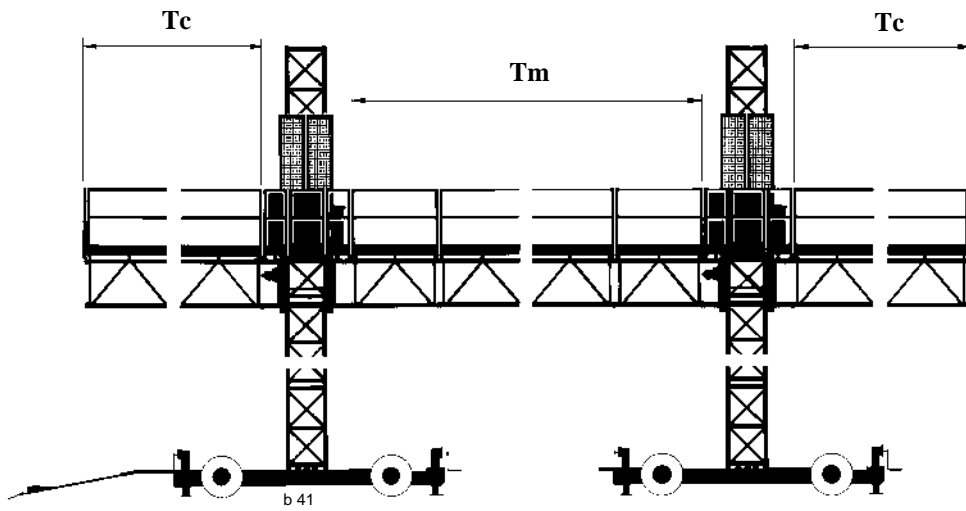
Tc = Maximum evenly distributed cantilever load on one side

Tes = Maximum concentrated load on outermost platform section

The sum of the two cantilever loads Tc must never exceed the total payload capacity T for the platform configuration in question. For this purpose, if a full Tc load is placed on one side the load on the other must be limited to T minus Tc to avoid T being exceeded.

Deduct the weight of persons according to page B 6

B 4



N_c = Number of cantilever platform sections

N_m = Number of midspan platform sections

L = Platform length

T = Total payload capacity

T_c = Maximum evenly distributed cantilever load on one side

T_m = Midspan load, evenly distributed

The sum of the two cantilever loads T_c and the midspan load T_m , must never exceed the total payload capacity T for the platform configuration in question.

Maximum load – Twin mast configuration

Aliclimber 6600 Twin				Without platform extension			With platform extension		
Nc left	Nm center	Nc right	L feet	T lbs.	Tm lbs.	Tc lbs.	T lbs.	Tm lbs.	Tc lbs.
1	4	1	40	15080	15080	4310	(13880)	(13880)	(4310)
1	5	1	45	14770	14770	4340	(13440)	(13440)	(4350)
1	6	1	50	14460	14460	4370	(13000)	(13000)	(4390)
2	4	2	50	14460	14460	3070	(13000)	(13000)	(3050)
1	7	1	55	14140	14460	4390	(12550)	(12560)	(4430)
2	5	2	55	14140	14460	3090	(12550)	(12560)	(3080)
1	8	1	60	13830	13820	4420	(12110)	(12120)	(4470)
2	6	2	60	13830	13820	3110	(12110)	(12120)	(3110)
3	4	3	60	13830	13820	2380	(12110)	(12120)	(2350)
1	9	1	65	13510	13510	4450	(11660)	(11650)	(4510)
2	7	2	65	13510	13510	3130	(11660)	(11650)	(3140)
3	5	3	65	13510	13510	2390	(11660)	(11650)	(2370)
1	10	1	70	13200	11580	4480	(11220)	(10290)	(4580)
2	8	2	70	13200	13200	3150	(11220)	(11210)	(3160)
3	6	3	70	13200	13200	2410	(11220)	(11210)	(2400)
1	11	1	75	12880	9920	4510	(10780)	(8500)	(4580)
2	9	2	75	12880	12890	3170	(10780)	(10770)	(3190)
3	7	3	75	12880	12890	2420	(10780)	(10770)	(2420)
1	12	1	80	12570	8490	4540	(10330)	(6940)	(4620)
2	10	2	80	12570	11580	3190	(10330)	(10290)	(3220)
3	8	3	80	12570	12560	2440	(10330)	(10330)	(2440)
1	13	1	85	12250	7230	4560	(9890)	(5560)	(4660)
2	11	2	85	12250	9920	3210	(9890)	(8500)	(3250)
3	9	3	85	12250	12250	2450	(9890)	(9890)	(2460)
1	14	1	90	11940	6110	4590	(9440)	(4300)	(4700)
2	12	2	90	11940	8490	3230	(9440)	(6940)	(3280)
3	10	3	90	11940	11580	2470	(9440)	(9450)	(2480)
3	11	3	94	11680	9920	2470	(9100)	(8500)	(2480)
2	14	2	99	11310	6110	3270	(8560)	(4300)	(3330)
3	12	3	99	11310	8490	2500	(8560)	(6940)	(2530)
3	13	3	104	10990	7230	2500	(8110)	(3160)	(2530)
2	16	2	109	10680	4160	3310	(7670)	(2100)	(3390)
3	15	3	114	10090	5090	2500	(7220)	(3160)	(2590)
3	16	3	119	9280	4160	2560	(6780)	(2100)	(2620)

Deduct the weight of persons according to page B 6

Maximum no. of persons allowed on the platform

Single mast platform

A maximum of four (4) people are allowed on the platform provided that the load **T** is reduced by 115 kg (250 lbs.) and **Tc** by 210 kg (460 lbs.) for each person.

Twin masted platform

A maximum of six (6) people are allowed on the platform provided that the load **T** and **Tc** are reduced by 230 kg (500 lbs.) and **Tm** by 250 kg (550 lbs.) for each person.

Load on work platform when crane is used

Max. load on work platform, when erection crane is used shall be reduced by the weight of the crane;

78 kg (172 lbs.) for manually or

85 kg (188 lbs.) for electrically operated crane.

Platform outside lengths

Nominal platform lengths are only rounded off values. In the table below the correct measures are shown.

SINGLE MAST				TWIN MAST			
Nom. length		Correct length		Nom. length		Correct length	
m	ft.	mm	ft.	m	ft.	mm	ft.
4.5	(15')	4674	(15' 4")	12.0	(40')	12214	(40' 5/64")
7.5	(25')	7690	(25' 2 3/4")	13.5	(45')	13722	(45' 1/4")
10.5	(35')	10706	(35' 1 1/2")	15.0	(50')	15230	(49' 11 1/16")
13.5	(45')	13722	(45' 1/4")	16.5	(55')	16738	(54' 11")
15.0	(50')	15382	(50' 5 5/8")	18.0	(60')	18246	(59' 10 11/16")
16.5	(55')	16738	(54' 11")	19.5	(65')	19754	(64' 11 5/64")
18.0	(60')	18398	(60' 4 5/16")	21.0	(70')	21262	(69' 9 3/32")
				22.5	(75')	22770	(74' 8 3/64")
				24.0	(80')	24278	(79' 7 53/64")
				25.5	(85')	25786	(84' 7 13/64")
				27.0	(90')	27294	(89' 6 9/16")
				28.5	(94')	28802	(94' 5 15/16")
				30.0	(99')	30310	(99' 5 5/16")
				31.5	(104')	31818	(104' 4 11/16")
				33.0	(109')	33326	(109' 4")
				34.5	(114')	34834	(114' 3 7/16")
				36.0	(119')	36342	(119' 2 13/16")

If a SHORT platform section replaces a LONG one the length shall be reduced by: 1508 – 830 = 678 mm (2' 2 11/16").

Free standing on mobile chassis

The work platform may be used free standing on mobile chassis under the following conditions:

In service maximum wind speed 12.6 m/sec. **(28 mph)**

Out of service maximum wind speed 40 m/sec. **(90 mph)**
exposure A and B according to EN 1495 and ASCE 7-93.

In service / Out of service

CAUTION: Note that the outriggers on the opposite side of the face of the structure must always be completely extended and locked.

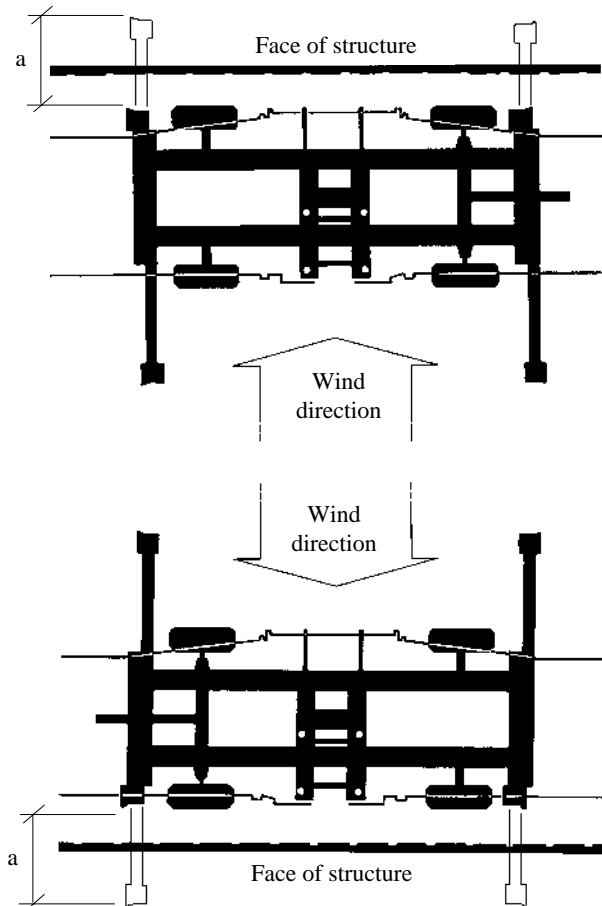
The mast **MUST ALWAYS** be tied when using the canopy.

Outriggers extended length a	Mast turned FROM the structure face without platform extension	with maximum platform extension
0.0 m	8.5 m (28 ft.)	8.5 m (28 ft.)
0.5 m (1.5 ft.)	13.0 m (43 ft.)	13.0 m (43 ft.)
1.0 m (3 ft.)	18.0 m (60 ft.)	18.0 m (60 ft.)

CAUTION: If the structure is "open" and the wind direction can be the opposite, the following values must be used.

1.0 m (3 ft.)	18.0 m (60 ft.)	18.0 m (60 ft.)
1.0 m (3 ft.)	14.5 m (48 ft.)	14.5 m (48 ft.)

Outriggers extended length a	Mast turned TOWARDS the structure face without platform extension	with maximum platform extension
0.0 m	5.5 m (18 ft.)	—
0.5 m (1.5 ft.)	10.0 m (33 ft.)	10.0 m (33 ft.)
1.0 m (3 ft.)	14.5 m (48 ft.)	14.5 m (48 ft.)



Asymmetrical platform configuration

– Platform length on each side of the mast shall be equal if possible. The difference may only be **ONE** platform section of 1.5 m (4 ft. 11 in.).

The longer end shall be dimensioned with regard to allowable maximum load.

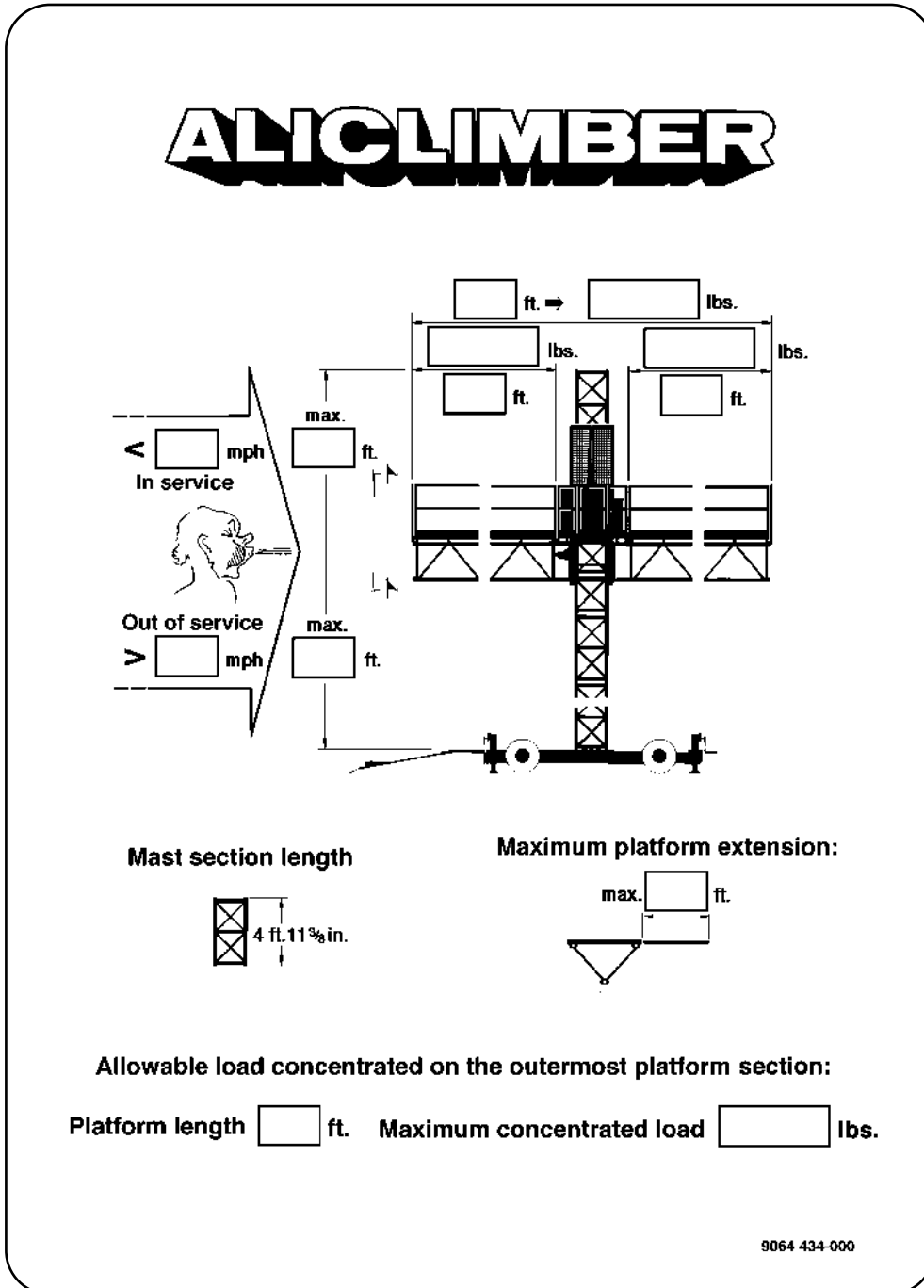
– The shortest distance between the masts for a twin mast work platform is 4 platform sections.

– Only 3 platform sections are allowed on the outside end of each mast.

Load signs

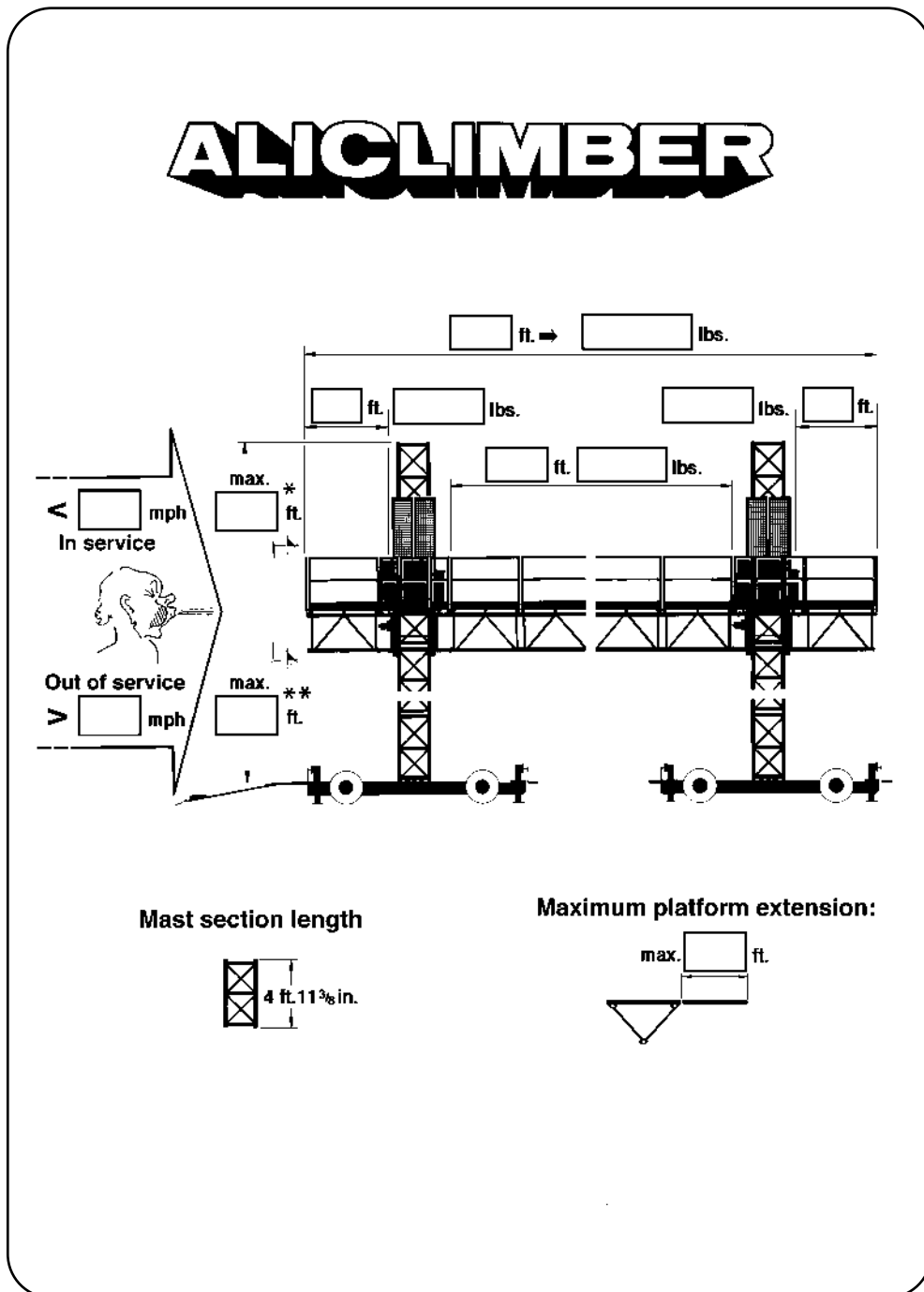
Rated load sign on the platform

Copy of each of following signs showing platform configuration, rated load and outrigger arrangements, must be completed by user or authorized installer of the platform and be mounted in a prominent place on the platform, near the control panel.



b 35

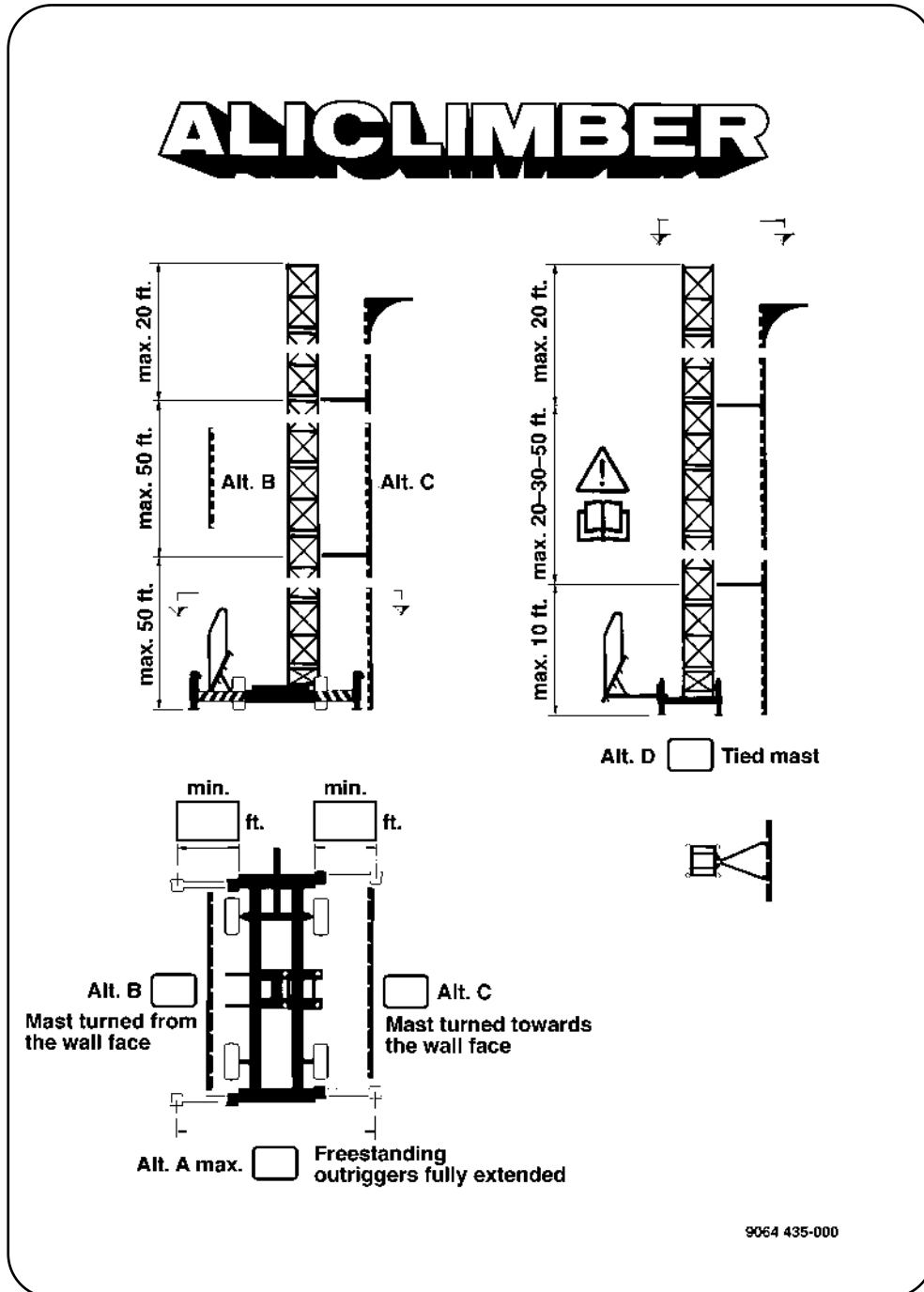
Data on information sign must be in accordance with technical data and additional technical information presented in this manual.



b 36

To enable re-use of the data sign it is advisable to fill in the data with a lead pencil or erasable instrument.

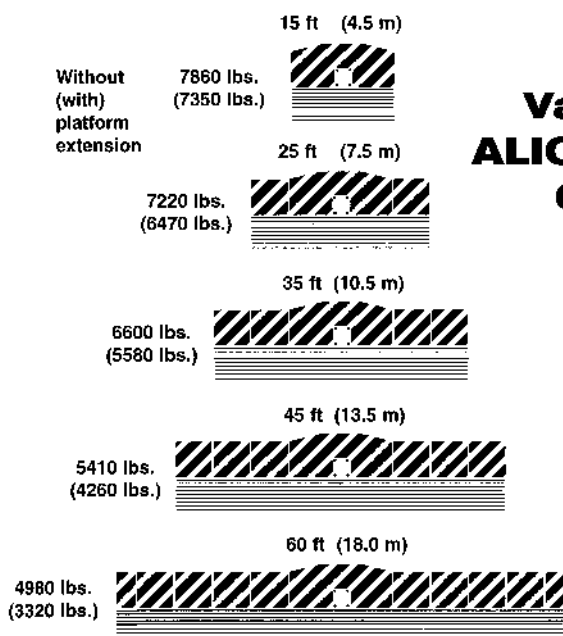
Outrigger arrangement sign



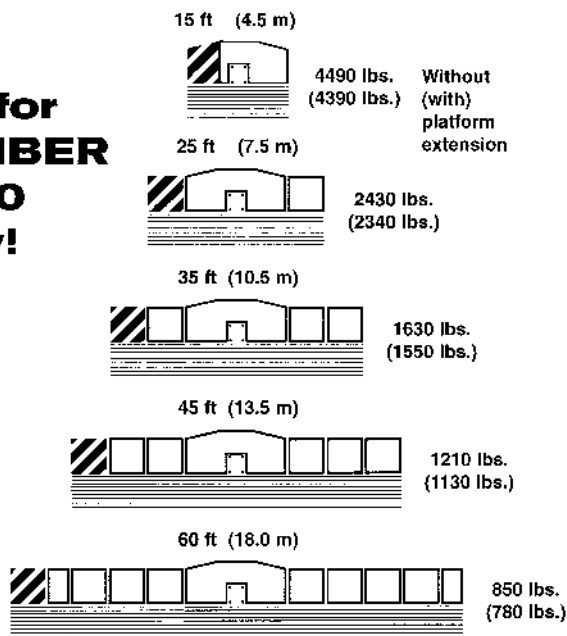
b 37

MAXIMUM PLATFORM LOADINGS

Uniformly distributed load



Eccentric load



**Valid for
ALICLIMBER
6600
only!**

IMPORTANT

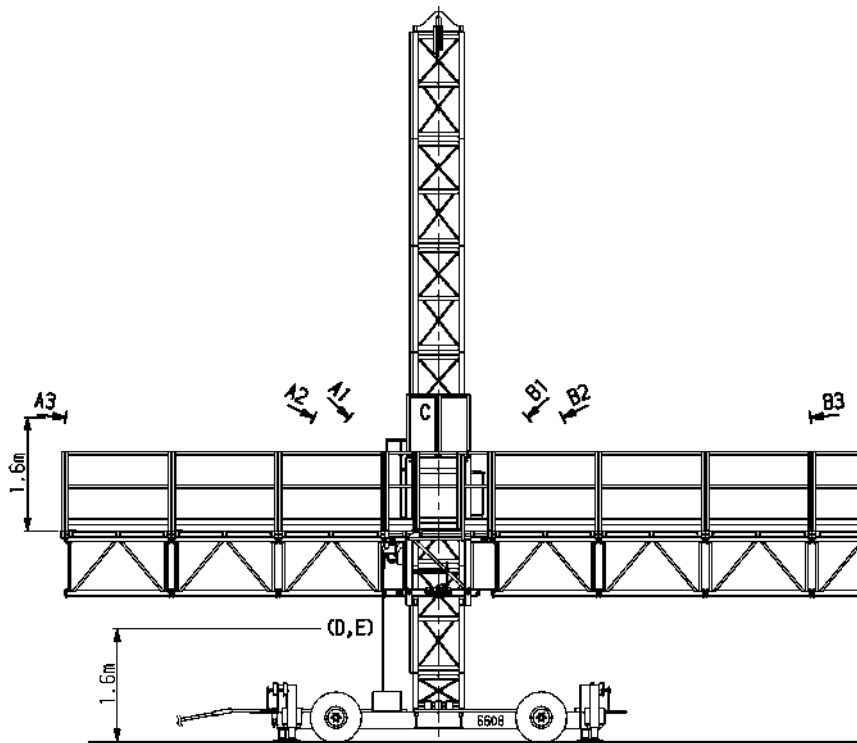
Study Operating Manual before use.
Do not load above recommended safe working loads.
No materials at any time to be placed on platform extensions.

9047 789-000

Noise level at operation

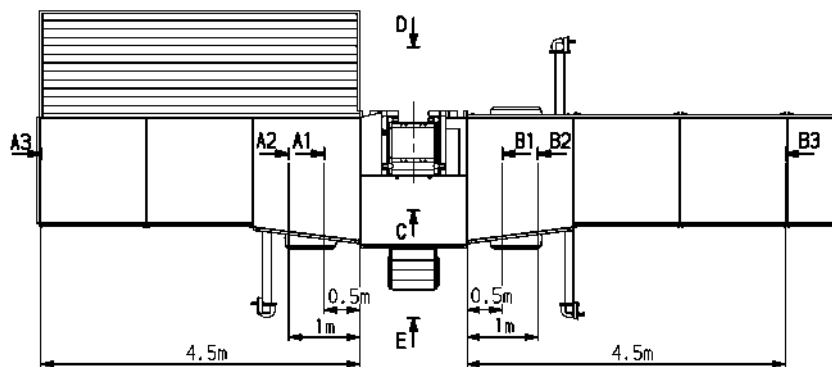
Measuring standard: IEC 651

Location of the microphone marked in the figure.



b 30

0.5 m = 1.64 ft.
 1.0 m = 3.3 ft.
 1.6 m = 5.25 ft.
 4.5 m = 14.76 ft.



Measured noise level

Location of microphone	A1	A2	A3	B1	B2	B3	C	D	E
Raising (dBA)	72	66	58	60	58	55	64	–	–
Lowering (dBA)	77	71	63	67	65	63	69	80	77

Note: The noise-level while lowering is higher because the *acoustic warning device* gives a continous warning when the platform is moving downwards.

Definitions

Lifting height / Mast height

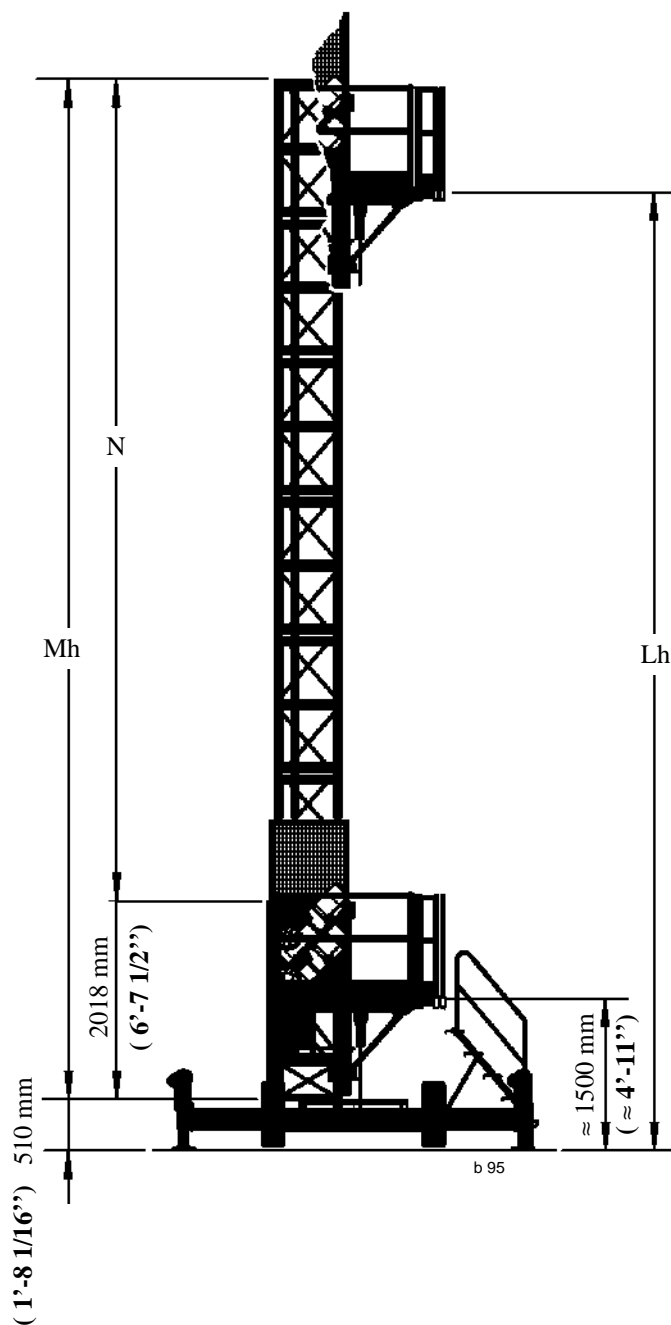
Lh = Lifting height

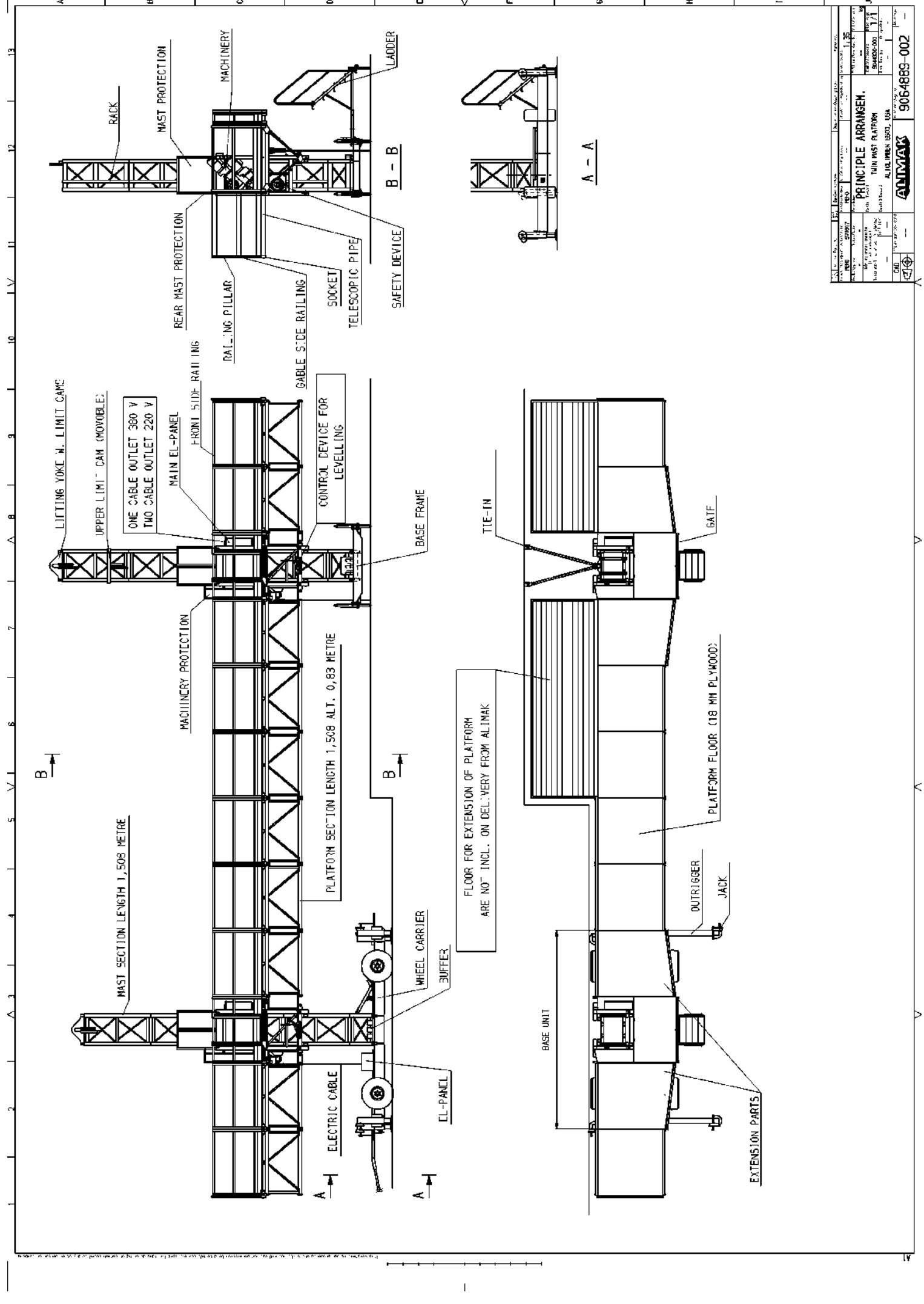
Mast section length = 1.508 meter = 4'-11 3/8"

N = Number of mast sections = $\frac{Lh - 1.3 \text{ meter}}{1.508}$ = $\frac{Lh - 4'-3''}{4'-11 3/8''}$

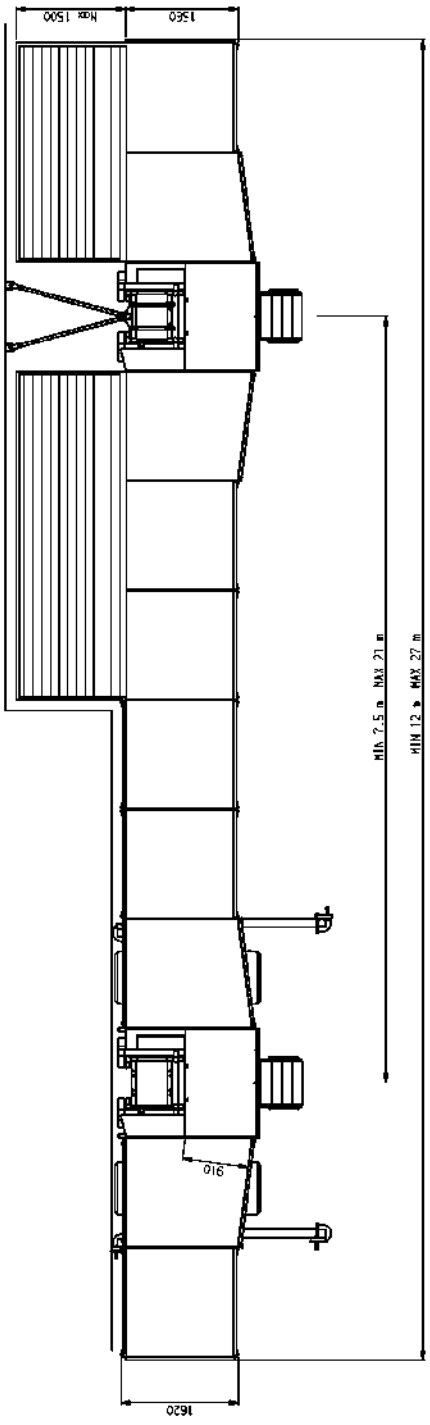
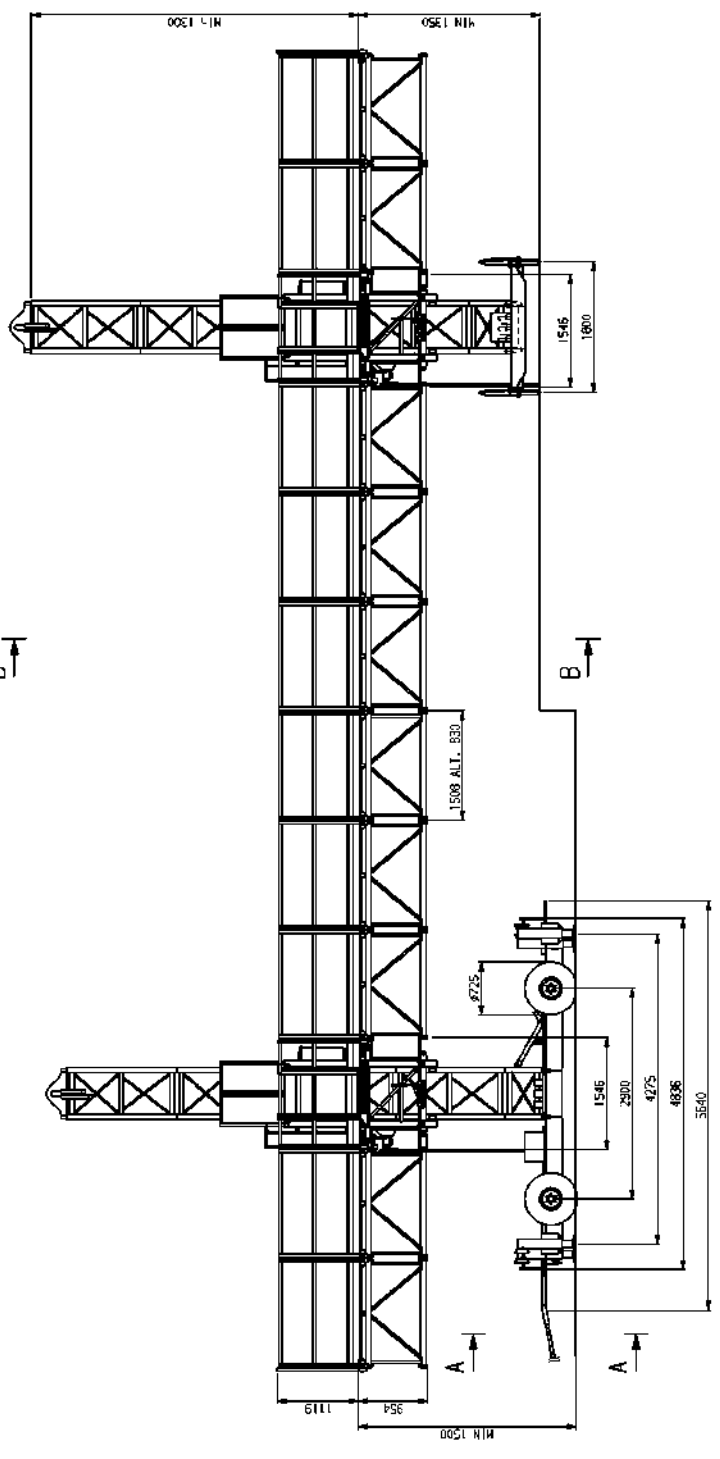
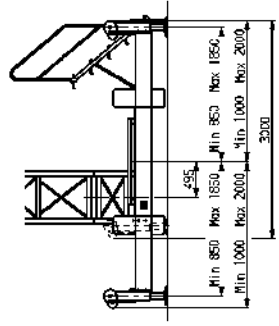
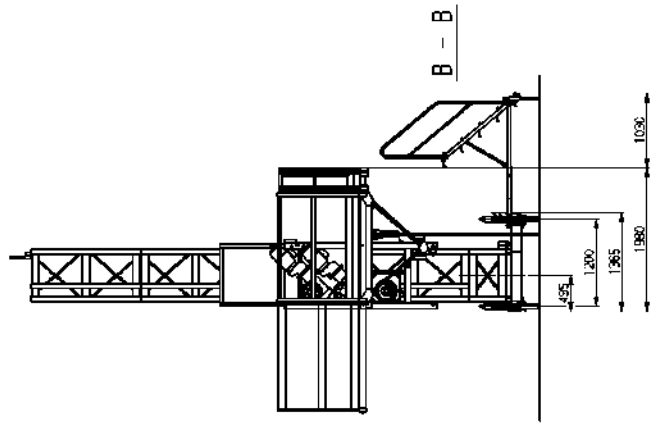
Mh = Mast height = 0.51 + N x 1.508 meter = 1'-8 1/16" + N x 4'-11 3/8"

Working height = Lh + 1.5 meter = Lh + 4'-11"



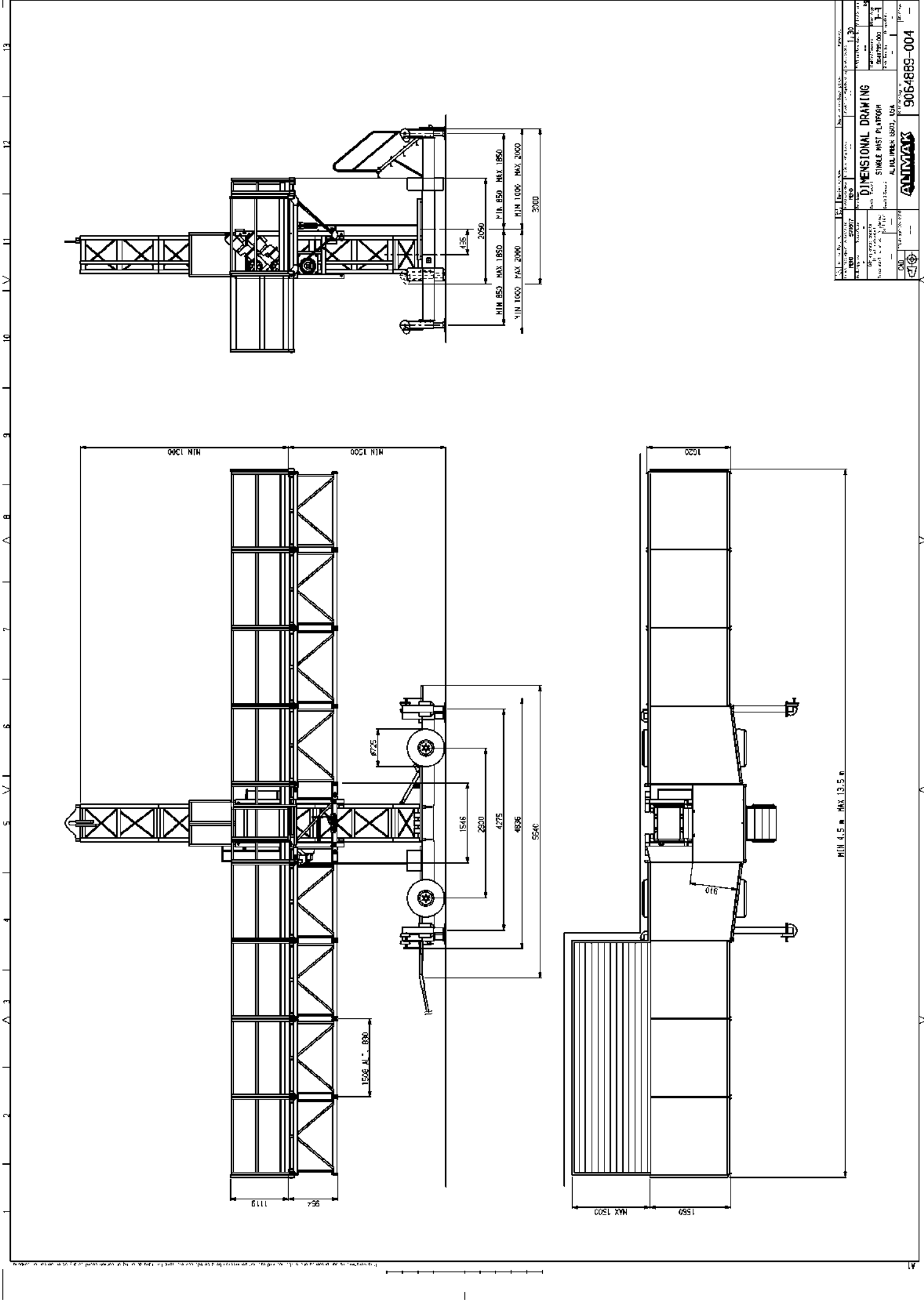


Scale	1:20	Drawn by	Checked by	Approved by
Project No.	906-4889-002	Drawn on	Checked on	Approved on
Client	ALTIMAK	Drawn at	Checked at	Approved at
PRINCIPLE ARRANGEMENT				
TWIN MAST PLATFORM				
ALTIMAK 1990, USA				
906-4889-002				



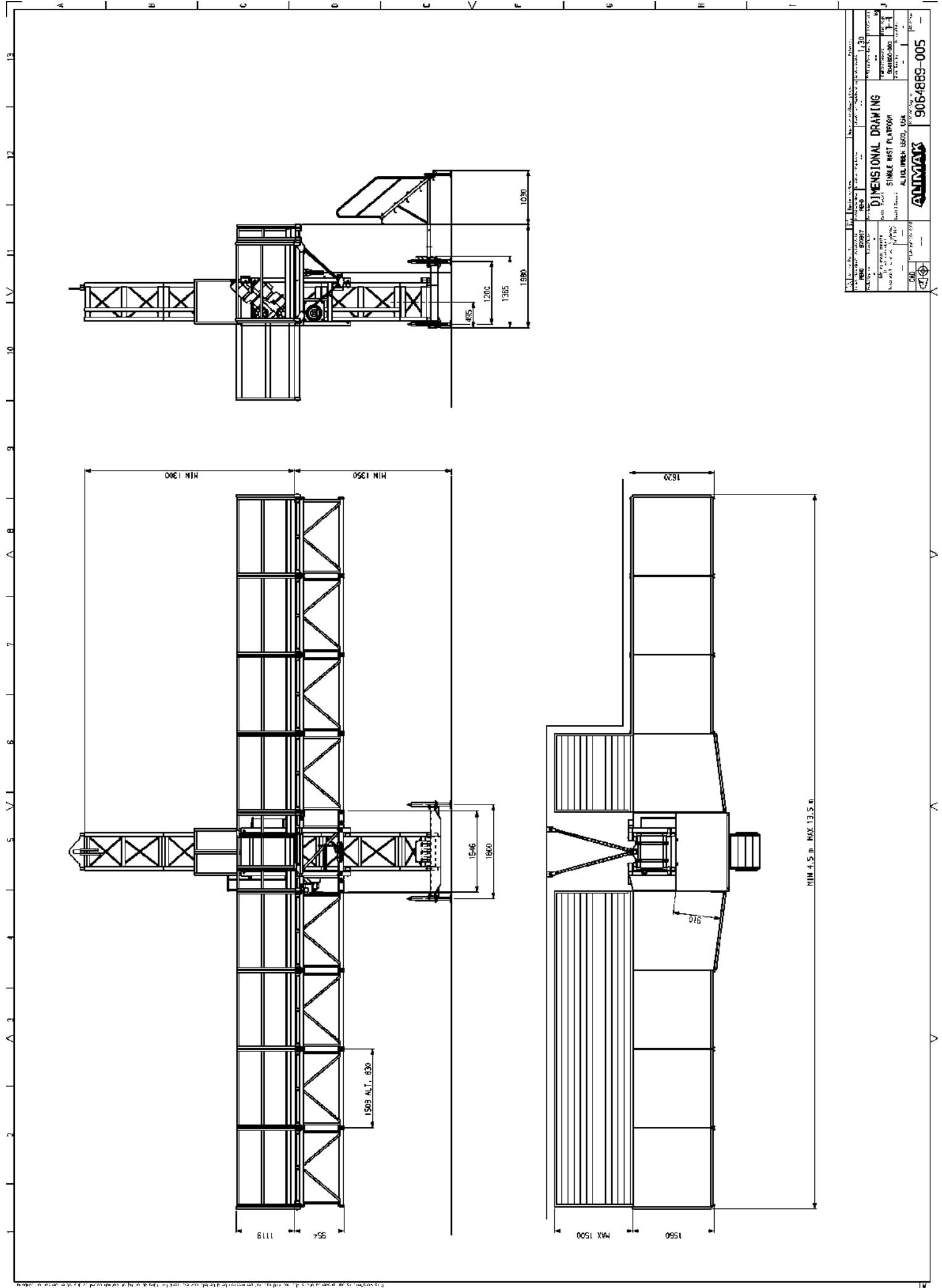
Scale	1:35
Project No.	9054889
Revision	1.0
Author	ALUMINUM
Checked	ALUMINUM
Drawn	ALUMINUM
Approved	ALUMINUM
Date	11/11
Sheet No.	001
Total Sheets	1
Project Name	TWIN PAST PLATFORM
Project Location	ALUMINUM 1850, USA
Company	ALUMINUM
Phone	9054889-003
Fax	
Website	
E-mail	

ALUMINUM
9054889-003



DIMENSIONAL DRAWING SINGLE MAST PLATFORM ALUMINUM 850L USA		ANIMAX 9064889-004	
1. Title 2. Description 3. Material 4. Finish 5. Weight 6. Volume 7. Lead Time 8. Notes	9. Part Number 10. Revision 11. Date 12. Drawn By 13. Checked By 14. Approved By	15. Scale 16. Units 17. Tolerances 18. Surface Finish 19. Heat Treatment 20. Marking	21. Manufacturer 22. Distributor 23. Sales Office 24. Contact Information

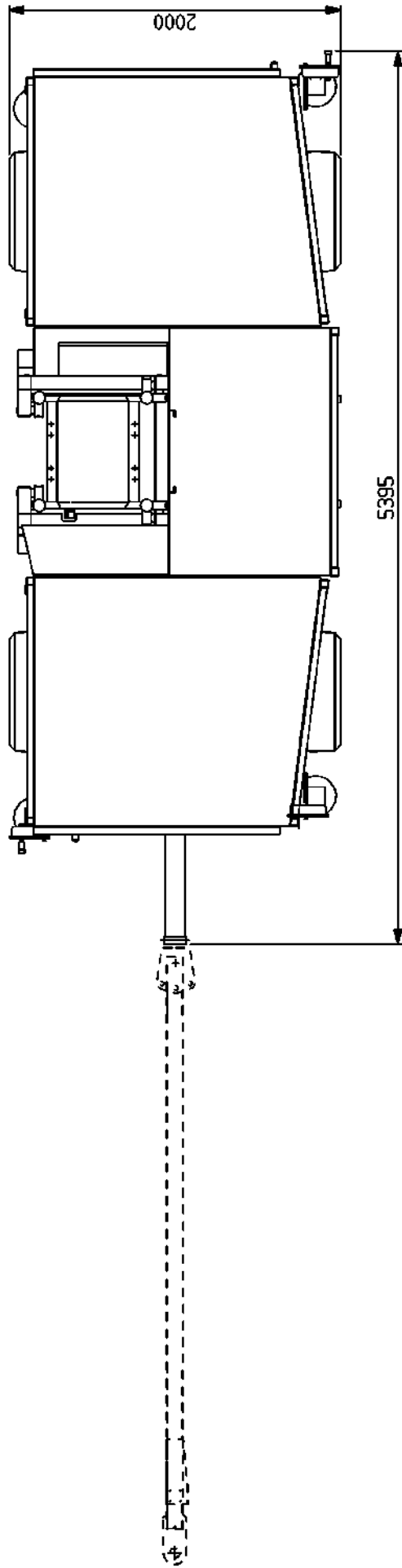
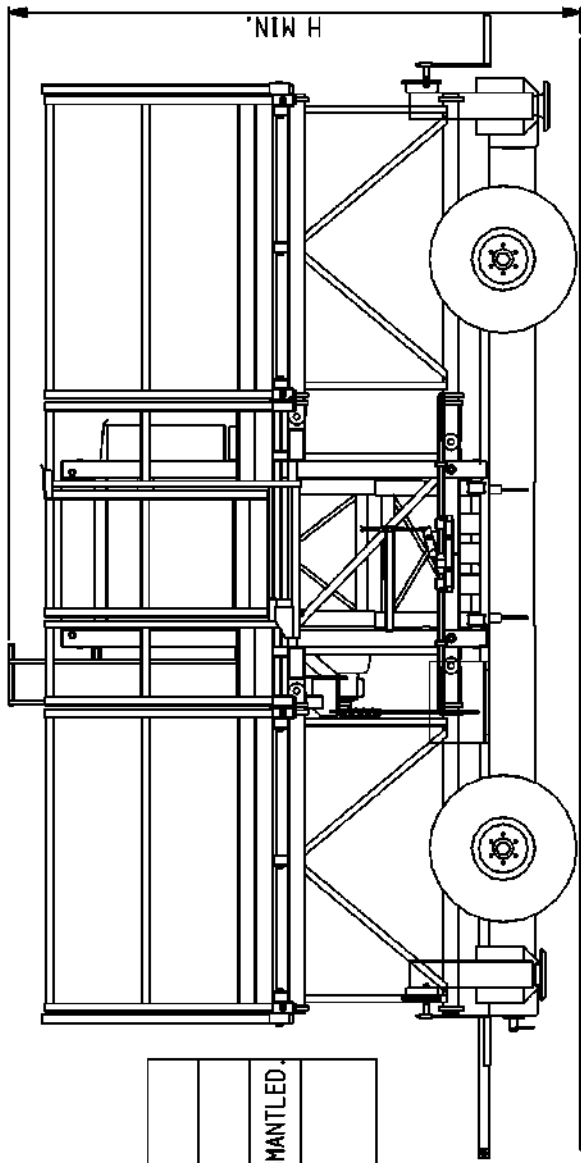
MIN 4.5 m MAX 13.5 m



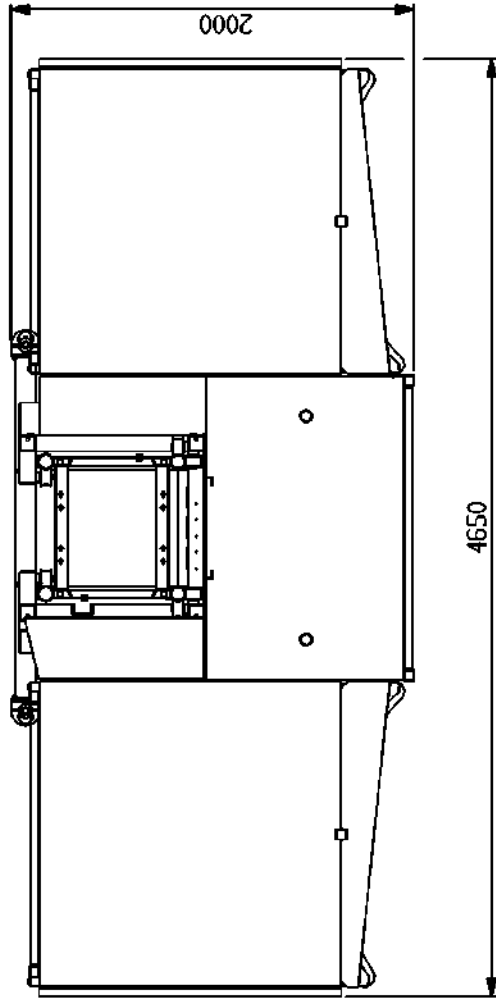
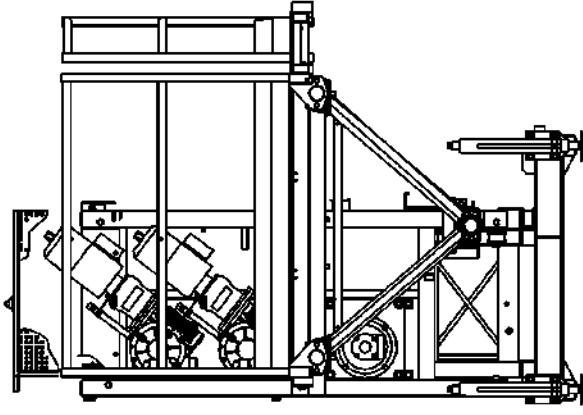
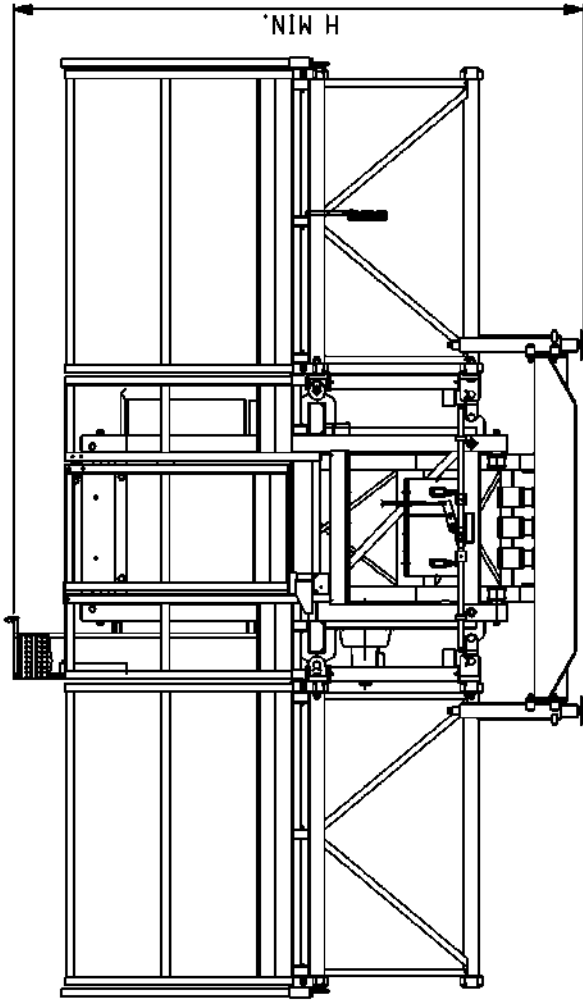
Client	ALUMINA	Project	9064889-005
Scale	1:30	Sheet	01
Author	ALUMINA	Date	2013-03-20
Project Name	DIMENSIONAL DRAWING	Client	ALUMINA
Project Address	SINGLE MAST PLATFORM	Project No.	9064889-005
Project Location	ALUMINA 1503, USA	Project Stage	01
Project Description	ALUMINA 1503, USA	Project Status	01
Project Manager	ALUMINA	Project Lead	ALUMINA
Project Engineer	ALUMINA	Project Designer	ALUMINA
Project Architect	ALUMINA	Project Contractor	ALUMINA
Project Consultant	ALUMINA	Project Supplier	ALUMINA
Project Fabricator	ALUMINA	Project Installer	ALUMINA
Project Operator	ALUMINA	Project Maintainer	ALUMINA
Project Inspector	ALUMINA	Project Auditor	ALUMINA
Project Approver	ALUMINA	Project Sign-off	ALUMINA
Project Release	ALUMINA	Project Close	ALUMINA

WEIGHT kg	H MIN. mm	DESCRIPTION
3670	2850	LIFTING YOKE MOUNTED.
-	2600	MACHINERY MOTOR AND LIFTING YOKE DISMANTLED.
-	2480	MACHINERY MOTOR, LIFTING YOKE AND RAILINGS DISMANTLED.

THE PLATFORM ON THE BUFFERS.



Pos. Item	Art. nr./Part No.	Int. Unit	Bedrijfsnaam	Beschrijving/Description	Materiaal
	Konst./Designer	911001	Alimak	Erfsett over/Replaced by	Staal/Steel
Scale/Approv.	Detail/Date	Rev./Name	DIMENSION DRAWING		
De afmetingen zijn in mm. Indien niet anders is vermeld, zijn de afmetingen in mm. De afmetingen zijn in mm.		Beschrijving/Description	BASE UNIT, MOBILE		
Tolerances/Tolerances		Beschrijving/Description	ALCLIMBER 5000/5600		
A-std. 12 131-2		Rev./Name	Richt nr./Dir. No.		
CAD		Rev./Name	9044323-000		
		Rev./Name	ALIMAK		

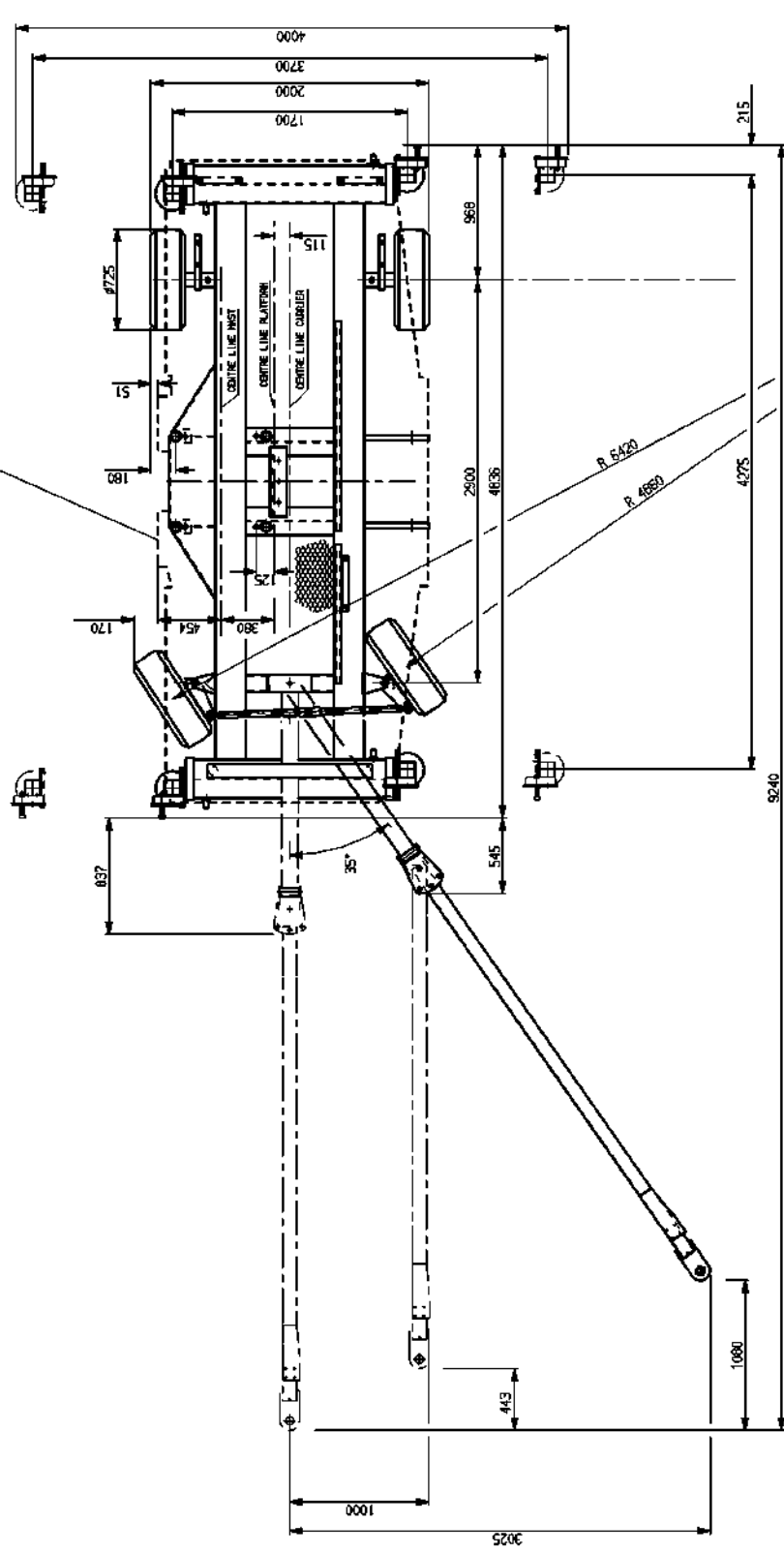


WEIGHT kg	H MIN. mm	DESCRIPTION
1908	2700	LIFTING YOKE MOUNTED.
-	2465	MACHINERY MOTOR AND LIFTING YOKE DISMANTLED.
-	2370	MACHINERY MOTOR, LIFTING YOKE AND RAILINGS DISMANTLED.

THE PLATFORM ON THE BUFFERS.

033 Item	Art nr/Part No. AJ	Doc/Assigner AJ	Date/Date 911002	ECT Suop.	Benämning/Name Ritning/Drawn AJ	Revisering/Description Ersätter/Replaces	Material 1:25
Scale/Äskov	Date/Date	Design/Design	Scale/Äskov	Scale/Äskov	Scale/Äskov	Scale/Äskov	Scale/Äskov
<p>DIMENSION DRAWING BASE UNIT, BASE FRAME ALICLIMBER 5000/6600</p>							
<p>Ä-metd. 12 131-2</p>							
<p>CAD</p>							
<p>ANIMAX 9044332-000</p>							

CONTOUR LINE FOR PLATFORM



Doc. No.	901210	Revised / Suppl. No.	1 / 25	Author	
Drawn by		Checked by		Project	
Drawn Date		Checked Date		Project Name	
Drawn Date		Checked Date		Drawn By	
Drawn Date		Checked Date		Checked By	
Drawn Date		Checked Date		Drawn Date	
Drawn Date		Checked Date		Checked Date	
CARRIER					
DIMENSION DRAWING					
ALICLINBER 5000/6600					
CAD			Date of issue		
			9041777-000		
			Sheet No.		
			1/1		
			Scale		
			1:1		

Conversion tables

Linear measure

1 mm	=	0.039''	(inches)
1 m	=	3.281'	(feet)
1 inch	=	25.4	mm
1 foot	=	304.8	mm

Torque

1 Nm	=	0.738	lbf x ft
1 Nm	=	0.102	kpm
1 kpm	=	9.807	Nm
1 lb x ft	=	1.356	Nm
1 kpm	=	7.233	lbf x ft
1 lbf x ft	=	0.138	kpm

Pressure

1 kPa	=	1000	Pa
1 Mpa	=	1000	kPa
1 Mpa	=	1	N/mm ²
1 Mpa	=	145	psi
1 Mpa	=	10.2	kp/cm ²
1 Mpa	=	10	bar
1 kp/cm ²	=	0.098	MPa
1 psi	=	0.006	MPa
1 bar	=	0.1	MPa
1 kp/cm ²	=	14.22	psi
1 bar	=	14.503	psi
1 psi	=	0.070	kp/cm ²
1 psi	=	0.069	bar

Effect

1 kW	=	1000	W
1 kW	=	1.341	hp
1 kW	=	1.36	hk
1 hk	=	0.735	kW
1 hp	=	0.746	kW
1 hk	=	0.986	hp
1 hp	=	1.014	hk

Volume

1 m ³	=	1000	dm ³
1 dm ³	=	1	liter
1 liter	=	0.220	Imp.gallon
1 liter	=	0.264	US.gallon
1 Imp.gallon	=	4.546	liter
1 US.gallon	=	3.785	liter
1 Imp.gallon	=	1.201	US.gallon
1 US.gallon	=	0.833	Imp.gallon

Moment of inertia

1 kgm ²	=	3417	lbin ²
--------------------	---	------	-------------------

Force

1 N	=	0.225	lbf
1 N	=	0.102	kp
1 kN	=	1000	N
1 kp	=	9.807	N
1 lbf	=	4.448	N
1 kp	=	2.205	lbf
1 lbf	=	0.454	kp

Weight

1 kg	=	2.205	lbs
1 lb	=	0.454	kg

Temperature

C	=	$\frac{5}{9} (F^{\circ} - 32)$
F	=	$32 + \frac{9}{5} C^{\circ}$

Operating requirements	C 1
Operator requirements	C 2
Important safety instructions	C 3

Operating personnel requirements

User Requirements

The information in this manual must be supplemented with good job management, site safety regulations, training, proper installation, inspections, maintenance, consistent with all available technical data found in this manual. Since the user/owner has direct control over the application and operation of the Alimak Work Platform, conformance with good safety practices is the direct responsibility of the user/owner and operating personnel. As the Mast Climbing Work Platform will be carrying personnel, decisions on the use and operation of the equipment must take this into account relative to their safety.

Maintenance training

The user must train their maintenance personnel in inspection, erection and maintenance of the Alimak Platform in accordance with this Instruction Manual and with the manufacturer's recommendations.

Operator training

Whenever a user directs an individual to operate a Alimak Platform, they shall ensure that the individual has been trained in accordance with the manufacturer's Operating and Maintenance Manual, and the user's work instructions and requirements listed in sections of this Instruction Manual before operating the Alimak Platform.

Model training

The user shall be responsible for the operator being trained on the model of the Alimak Platform that will be operated. Such training shall be in an area free of obstructions, under the direction of a qualified person to determine that the trainee displays full knowledge in the operation of the Alimak Platform. Only authorized and properly trained personnel shall be permitted to operate the Alimak Platform. Such a person must always be located on the platform during its use.

Before operation

Before authorizing an operator to operate a Alimak Platform, the user shall ensure that the operator has:

- been instructed by a qualified person in the intended purpose and function of each control;
- has read and understood the manufacturer's latest operating instructions and user's safety rules, or been trained by a qualified person on the contents of the manufacturer's operating instructions and user's safety rules;

- understood all decals, warnings, and instructions signs displayed on the Alimak Platform;
- determined that the purpose for which the Alimak Platform is to be used is within the scope of the intended applications defined by the manufacturer.

Operator Requirements

The information in this Instruction Manual must be supplemented by good judgement, site safety regulations, and caution in evaluating each situation. Since the operator has direct control of the Alimak Platform, strict conformance with good safety practices in this area is the responsibility of the operator. The operator must make decisions on the use and operation of the Alimak Platform with due consideration that his own safety as well as the safety of other personnel on and around the platform is dependent on these decisions.

Instruction Manual

The operator shall be aware that the Instruction Manual is stored on the Alimak Platform and the location where it is stored. The operator shall be familiar with this and consult the manual when questions arise with respect to the Alimak Platform.

Training

The operator shall have been trained either on the same model of a Alimak Platform or one having operating characteristics and controls consistent with the one to be used during actual work site operation. The operator trainee shall operate the Alimak Platform in an area free of obstructions under the direction of a qualified person for a sufficient time to determine that the trainee displays proficiency in knowledge and actual operation of the Alimak Platform. Only authorized properly trained personnel shall be permitted to operate the Alimak Platform.

Before operation

Before being authorized to operate the Alimak Platform, the operator shall have:

- been instructed by a qualified person in the intended purpose and function of each of the controls
- read and understood the manufacturer's/owner's operating instructions and safety rules, or been trained by a qualified person on the contents of the manufacturer's/owner's operating instructions and safety rules.
- understood by reading or having a qualified person explain all decals, warnings, and instructions signs displayed on the Alimak Platform.

Operating procedure requirements

Each day before the Mast Climbing Work Platform is taken into use, the user shall check the operating devices, i. e. motor brakes, emergency stop, the condition of all trailing cables, travel limit switches, guardrails, structural connecting mast ties, cables, guide rollers, and information plates, etc.

Keep the work platform clean from waste, of debris, snow etc.

Before any work is commenced, the operator shall visually check the outriggers and any timber or other packing on the ground shall be visually checked to ensure that it is in good order.

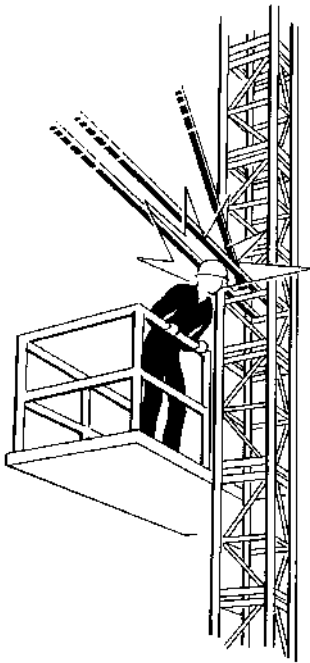
Ensure that tools and other objects do not project outside the perimeter of the MCWP.

During the work the operator shall carefully follow the operating instructions.

At the end of the work period the platform shall be brought into the "Out of service" position and it shall be isolated to prevent unauthorized operation.

In the event of a fault with the MCWP, which can jeopardize safety, the operator shall immediately immobilize the MCWP and notify a competent person.

In case of emergency the operator must follow the relevant instruction described in this manual.



c 5

Important Safety Instructions

Over the years serious accidents have occurred during the erection and dismantling of rack and pinion equipment.

Common to these accidents has been the "human factor", i.e. non adherence to proper safety procedures and common sense.

Some examples:

Leaning over the safety railing while the platform is moving upwards can cause you to be struck by a tie or other protruding objects.

Incomplete installation of mast bolts can cause separation of the mast sections, leading to the fall of the platform with subsequent loss of life or serious injuries.

Avoid the risk of accidents by carefully studying these instructions regularly. Think clearly! Do not rush the work and always check to make certain that the work is being done properly.

SAFETY FIRST!

Safety Instructions

Local Safety Regulations

- All local regulations shall apply.

Weather Conditions

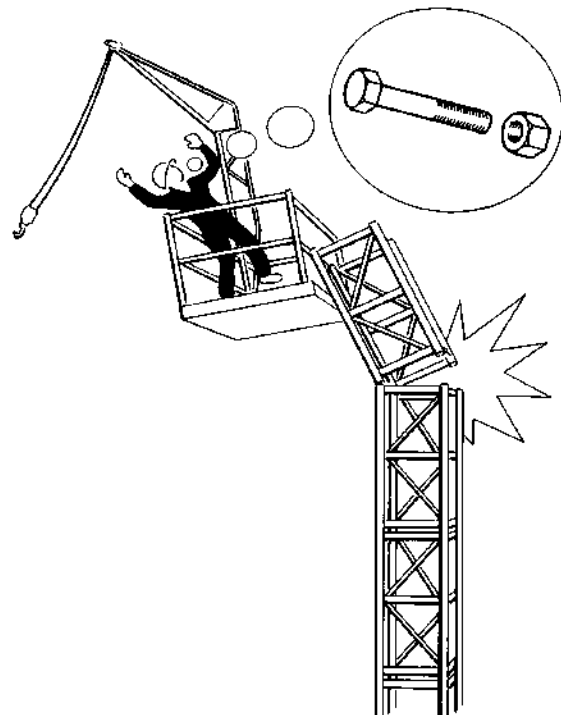
- Do not erect or dismantle if wind speed exceed 12.6 m/s. **(28 mph)** or as governed by local regulations where more stringent.

Preparation

- Read and understand the Instruction Manual before work begins.
- Barricade or rope off the area before erecting or dismantling.
- Do not allow unauthorized personnel on or around the platform during erection or dismantling.

Safety Equipment and Protective Clothing

- Prescribed safety equipment and clothing such as hard hat, safety shoes, fall arresting device shall be used.
- Loose fitting clothes such as scarves must not be used as they might become entangled in moving parts.



c 6

General

- Read all Warning and Instruction Signs.
- Keep the work area clean. Any oil spillage must be removed immediately to avoid the risk of slipping.
- Never climb on the mast.
- During mast erection, dismantling or hoistway inspection, the machine must always be operated from the platform.
When working from the platform take precautions to avoid being struck by balconies, scaffolds and other similar obstructions while platform is moving.
- When the control equipment on the platform is to be left temporarily during installation/dismantling or service, the main switch on the electric panel must be switched off locked, and tagged in order to ensure no accidental movement of the platform.
- Under no circumstances shall the platform be driven if there is any one on the mast or below the platform.
- Complete each item of work before starting a new one or taking a break. This is especially important when bolting mast sections and installing ties.

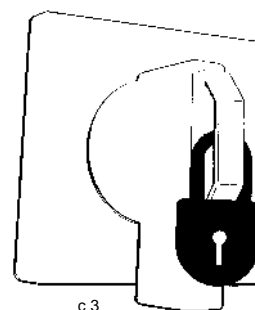
Mast and Mast Ties

- The maximum tie distance must not be exceeded.
- The platform shall not be clad or encumbered with signs, banners and similar items which will increase the wind area of the platform, and thereby negatively affect its stability.
- Bolted joints shall always be tightened to the required torque as prescribed in the Instruction Manual.
- If any structural damage or severe corrosion is seen on such items as mast sections, mast ties or other load carrying members, the platform must be immediately taken out of service and the extent of the damage be determined.
Corrective action must be taken before the platform is put into service again.

Electrical Power

- Work performed on electrical equipment must be carried out by competent personnel, trained for such work. The power supply must be switched off locked and tagged, before work is performed.

Always lock the main "ON/OFF" switch with a padlock and tag to prevent unintentional operation while service/inspection work is carried out.



The main "ON/OFF" switch must be in the "OFF" position before the panel door can be opened.

Safe distance to dangerous high voltage cables

- Follow the table below to find the minimum allowed safe distance between any part of the machine and any current carrying high voltage power cable. Also conform to local regulations where more stringent.

Voltage range (phase to phase)	Minimum safe approach distance	
	meters	feet
0 to 300V	Avoid contact	
Over 300V to 50kV	3.0	10
Over 50kV to 200kV	4.5	15
Over 200kV to 350kV	6.0	20
Over 350kV to 500kV	8.0	25
Over 500kV to 750kV	11.0	35
Over 750kV to 1000kV	14.0	45

Illumination

- Adequate lighting shall be provided to illuminate the site over the full travelling height of travel of the platform.

Lightning

- The work platform shall be earthed (grounded) so that the charge from a lightning strike is connected to earth. Personnel shall not be on the platform during such weather.

Spare Parts

- Unauthorized spare parts are not to be used. Only "Alimak Genuine Spare Parts" are to be installed.

Instructions for use	D 1
Operating instructions	D 2
If the platform does not start	D 3
If the platform suddenly stops	D 4
If the machine has been driven against the lower final limit cam	D 6

Instructions for use

Instructions for the user/operator on how the equipment is to be operated are presented below. These instructions will also be found on a sign on the platform.

Illegible and missing signs must be replaced!

SAFETY INSTRUCTIONS

Before using this platform, carry out the following safety procedures, as well as any maintenance and lubrication specified in the Operator's Manual.

DAILY PRE-OPERATION CHECKS

1. Hand rails and guards are securely fastened.
2. Chassis is level – where applicable.
3. Outriggers are fully extended and locked.
4. Jacks are down and stand on firm ground or support plates.
5. No unauthorized persons are in the vicinity of the machine when it is in operation.
6. All emergency stop switches are working.
Test run with each one of the switches in "Off"-position.
7. Check function of final limit switches by making test runs.
Also check attachment of all limit ramps and switches.

SPECIAL WEATHER CONDITIONS

1. Following any severe weather, i.e. storms, tornados, hurricanes or earthquakes, all vital parts of the platform must be inspected and tested by an expert or authorized local inspector prior to reuse of the platform.
Remove any accumulated ice or snow before reusing platform.
2. Platform with mast tied to building must not be used when wind velocity exceeds 15.5 m/sec. **(34 mph).**
3. Free-standing platform must not be used when wind velocity exceeds 12.6 m/sec. **(28 mph).**
4. The platform must be left out of service at base landing on completion of work.

DAILY POST OPERATION CHECKS

1. Work platform driven to base landing.
2. Main switch is switched off and locked.
3. That freestanding mast height does not exceed stated value on load sign.

9064 425-101

Note that the operator/user is responsible for ensuring that the daily "Safety Inspection" has been carried out BEFORE the platform is put into service.

Operating instructions

Operating instructions for Work Platform

1. Observe and study the safety instructions.
2. Take necessary measures to avoid risks of slipping if the working platform floor, staircase etc. is covered with oil, snow/ice or frost.
3. The area below the platform must be barricaded to prevent injury to personnel on the ground due to the possibility of falling objects.
4. Unlock and remove the padlock from the main switch.
5. Turn the main ON/OFF switch(es) on the platform to position "ON".
6. Load the platform. Do not overload and do not place the load outside platform railing.
7. Make certain that the load signs show the actual platform configuration.
8. Close the safety railing gate(s) fully.
9. Check for obstacles in the path of travel of the platform.

When extension parts are used in connection with tied mast, special attention must be observed so that the passage is free for the platform.

Keep this constantly under observation.

10. Depress the push button with the symbol for the desired direction of travel and the push button "RUN" and keep them depressed. The platform will now start.

The platform will stop as soon as one of the pushbuttons are released. Note that the machine's pendant remote control box must not be moved and used outside the work platform.

At the top and bottom the platform will stop automatically by means of the normal limit switches.

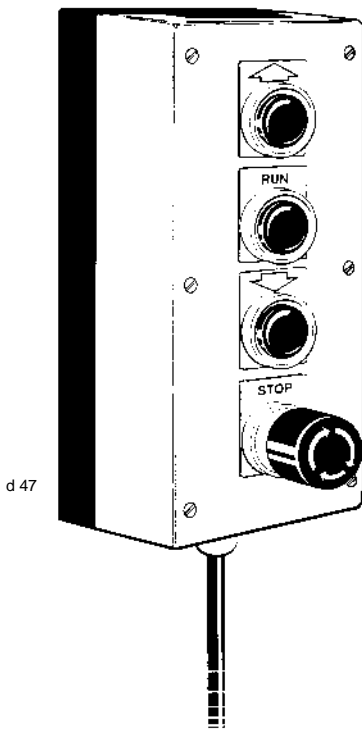
11. On the way down check that the machine's audible warning signal is in operation.
12. Turn the main ON/OFF switch(es) on the platform to position "OFF".

At the end of the shift

1. Drive the platform to the base.
2. Switch off and lock the main switch with a padlock to prevent unauthorized use.

Operating instructions for mobile chassis

– see chapter L "Transports and movements".



d 47

Platform with mast tied to building

The work platform may be used under the following conditions:

In service maximum wind speed 15.5 m/sec. **(35 mph)**.

Out of service maximum wind speed 40 m/sec. **(90 mph)**
exposure A and B according to ASCE 7-93.

Free standing on mobile chassis

The work platform may be used free standing on mobile chassis under the following conditions:

In service maximum wind speed 12.6 m/sec. **(28 mph)**

Out of service maximum wind speed 40 m/sec. **(90 mph)**
exposure A and B according to ASCE 7-93.



DANGER !

Tipping hazard.

Never use the work platform with free standing mast when wind velocity exceeds 12.6 m/sec **(28 mph)**.

Will cause severe injury or death.

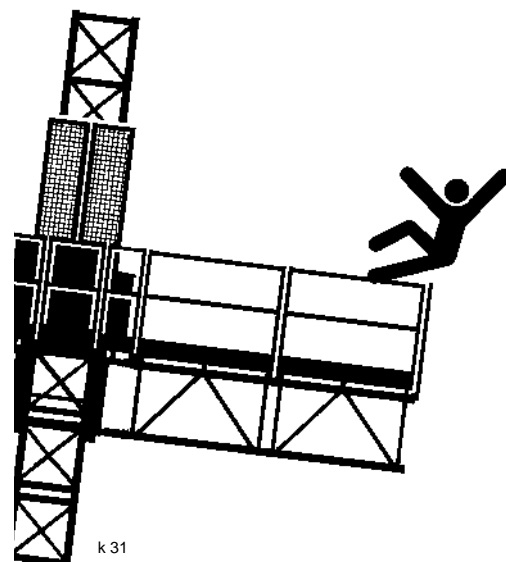
Enlarged wind areas

No extraneous items or unapproved accessories shall be attached to the platform system, such as signs, banners.

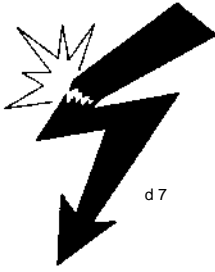
If the platform does not start – check:

- that the main ON/OFF switch (switches) on the platform is in the ON position and that the platform is supplied with electric power.
- that the selector switch (switches), "Horizontal or Vertical" movement is in the horizontal position.
- that no "Emergency Stop Push Button" is in their depressed position.
- that the entrance gate and the machinery door is closed.
- that the Single & Slave / Master-switch is in the correct position for the platforms configuration.
- that the final limit switch (switches) is not activated. If a final limit switch is activated – see heading "Manual cranking".
- that the circuit breaker (breakers) for control power has not tripped out.
- that the phase sequence is correct (the LED on the phase failure relay should be lit).

If the platform still does not start, see the instructions in the section "Electrical trouble-shooting".



D 4



If the platform suddenly stops

If the platform stops due to a power failure or any other electric failure, such as blown fuses, tripped motor overload protector, etc., it can be manually lowered for unloading.

Slide the platform only short distances at very low speed in order not to exceed the normal operating speed of the platform. If excess speed occurs, the platform's safety device will automatically trip and stop the platform.

If the safety device trips during sliding

There is NO power to the drive motor

1. Crank the platform approximately 20 cm (8 in.) upwards according to the instructions "Manual cranking" to release the mechanism of the safety device.
2. Try to slide the platform again.

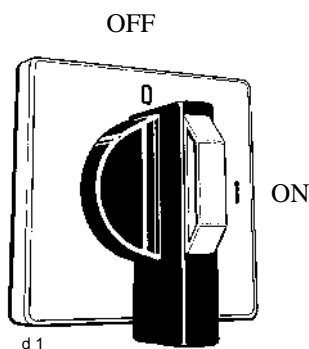
There is power to the drive motor – or power is back after a short interrupt

1. Run the platform up approximately 20 cm (8 in.) according to the instructions "Emergency Electrical Operation" to release the mechanism of the safety device.
2. Try to slide the platform again.

The safety device can be allowed to trip 2 to 3 times – before it MUST be reset to neutral position

The reason why the safety device must be reset is that the brake cone after each tripping will be forced tighter against the brake lining, stopping distance will be decreased and braking more abrupt.

Note that the safety device MUST be reset as soon as the platform reaches the ground.



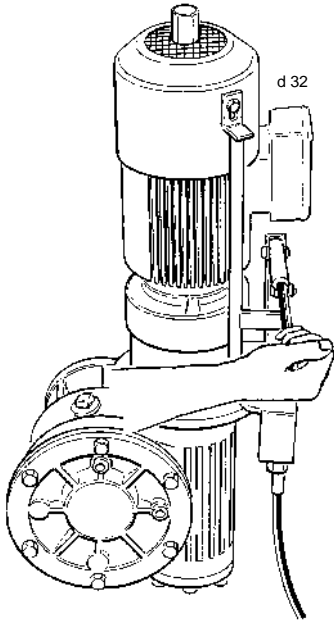
Sliding

1. First check applicable items under the heading "If the platform doesn't start – check".
2. Turn off the main ON/OFF switch on the electrical panel.
3. Open the mesh door enclosing the machinery and take out the brake release lever located in the document box. The door is electrically interlocked to prevent accidental platform operation when the door is open.

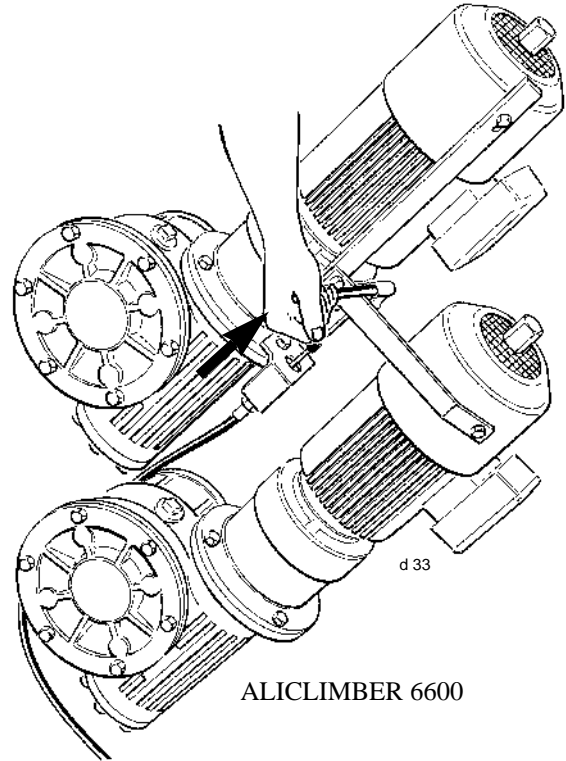
4. Attach the brake release lever into the socket of the motor brakes' linkage system.

Platform in single configuration

- Push the lever carefully in the motors' longitudinal direction to slide.



ALICLIMBER 3900



ALICLIMBER 6600

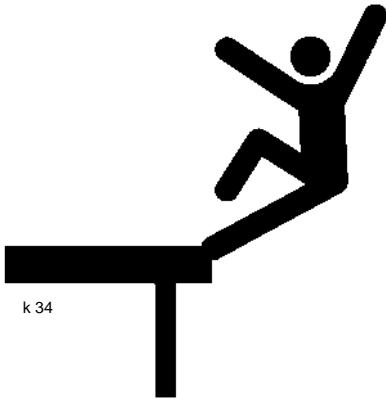
Platform in twin configuration

- Push the lever carefully in the motors' longitudinal direction to slide – until the horizontal levelling equipments' Teleflex cable activates the brake. Follow the same procedure with the other drive unit, and continue this (back and forth) until the desired level is reached.

If there is more than one person on the platform it is possible to slide both drive units at the same time. The horizontal levelling equipment will automatically compensate for speed differences by setting the corresponding brake until the other drive unit catches up.

CAUTION: Only slide short distances with maximum 1/3 of normal operating speed. Stop at least 1 (one) minute every 20 meters (65 ft.) so that the brakes have time to cool off. Overheating can cause the brake function to deteriorate.

D 6



5. If sliding of the platform is not possible – stay on the platform and call for assistance.



DANGER !

Falling hazard.

Do not leave the platform – wait for assistance.

Will cause severe personal injury or death.

6. Remove the release lever after completion. Close the door over the machinery.

If the machine has been driven against the lower final limit cam

Heavy load and/or poor brake function can cause the platform to activate the final limit switch at the bottom landing. This disconnects power to the drive unit. The platform can be cranked back manually to the normal landing level. Manual cranking should only be undertaken with power off.

Motor brake should be checked by trained/authorized service personnel, before the platform is put back into service.

Manual cranking

To be carried out by trained service personnel.

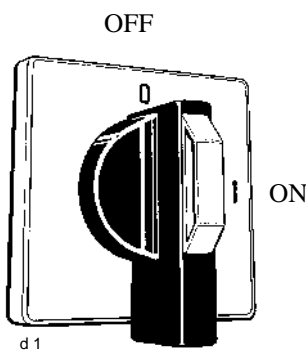


WARNING !

Crushing hazard.

Always disconnect the power by means of the main switch on the M-panel before working on the machinery.

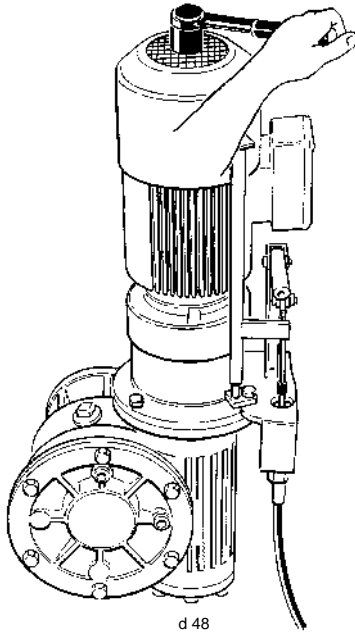
Can cause severe personal injury.



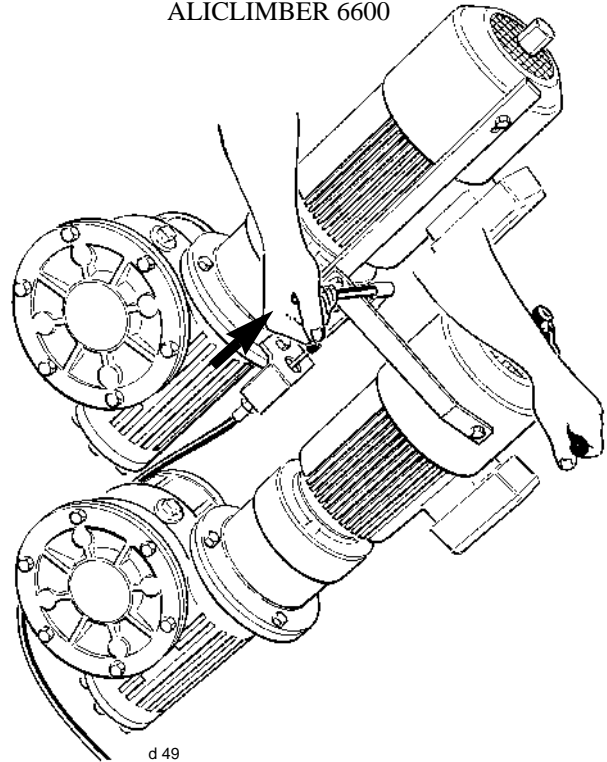
1. Open the mesh door enclosing the machinery and take out the ratchet with the 30 mm socket and the brake release lever, from the document box.

2. Attach the brake release lever into the socket of the motor brakes' linkage system and put the ratchet onto the hexagonal end of the lower motor – when there are several brake motors.

ALICLIMBER 3900



ALICLIMBER 6600



3. Lift the ratchet in the up direction, while at the same time releasing the brakes between every new turn of the ratchet. Note that the cranking can be carried out against one applied brake if the platform is unloaded.

Also raise the platform's other drive unit (if twin configured) in the same manner.

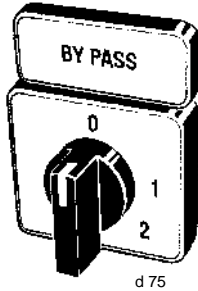
4. Remove the brake release lever, ratchet and socket after completion and return them to the document box.

D 8

”Emergency Electrical Operation”

The following instructions are used to drive the platform up *above the final level* and is only to be used if the platform has driven onto the final limit cam at the bottom landing because of worn brakes, or if the safety device has activated.

Motor brake should be checked by trained/authorized service personnel, before the platform is put back into service.



- Turn the By pass switch to position ”2” and hold it in this position. The platform will start and proceed in the up direction.

NOTE: Only drive the platform for short distances using this method.

- The Bypass switch is spring loaded to return automatically to position ”1”, which will prevent the platform from being operated.
- Turn the Bypass switch to ”0” position upon completion of this function.

Service and maintenance	E 1
Adjustments and wearlimits	E 4
Drop test	E 9
Lubrication diagram	E 12

Service and maintenance

In order to avoid unnecessary breakdowns, those responsible for the service and maintenance of this equipment must regularly ensure that all scheduled maintenance work is carried out at the recommended intervals according to the maintenance program below.

Adjustments and replacement as a result of inspection, must be carried out by trained/authorized service personnel.

Only ALIMAK Genuine Spare Parts must be used.

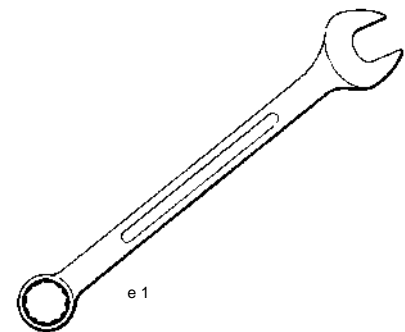
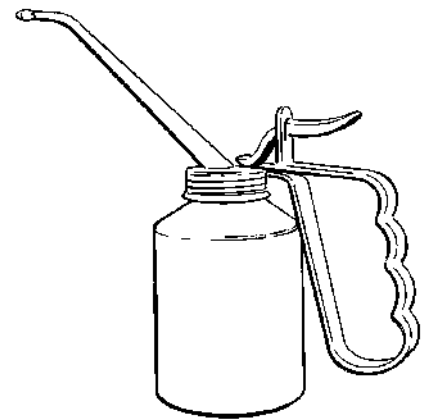


WARNING!

Unintended operation.

Always switch OFF lock and tag the main switch when leaving the platform even without having completed the service work.

Can cause severe injury or death.



Checklists

Checklists, with room for notes on maintenance executed, will be found at the end of this manual. Use them!

Service and maintenance schedule

See heading "Technical data & specifications" for bolt tightening torques.

Interval	Part	Instructions
40 operating hours or at least every month	1. Sign plates/ instruction manuals	Check that all signs are legible. Check if actual figures on load sign are correct and that documentation box contains manuals.
	2. Safety device	Check with the user/users if the safety device has been tripping without cause or if noise can be heard from the device during operation. For further details, see the instructions for checking wear on the safety device under the heading "Adjustment and wear limits".
	3. Worm gears	Check the oil level and refill if necessary. Leaking seals must be replaced by trained/authorized personnel.
	4. Lockings of safety railing	Check that all locks for platform safety railing are intact.
	5. Locating pins on outriggers	Check that all locating pins are intact.
	6. Wheels/tires	Check tire pressure. Check tires for damage and wheel nuts for tightness.
	7. Tow bar	Check tow bar for damages and that wiring, plug and socket are intact.

Interval	Part	Instructions
	8. Steering equipment	Check rods for damage.
	9. Guide rollers	Check that all bolts are properly tightened.
	10. Attachment of machinery plate	Check that all bolts are properly tightened.
	11. Electric motor brakes	Check that the platform stops within acceptable limits, specified later in this chapter. See also the special instructions for checking.
	12. Trailing cable	Check the cable for wear and to ensure that no kinks exist.
	13. Entrance gate mechanical latch and electrical interlock. Also electrical interlock for machinery door	Check the function of the latch and the interlock.
	14. Platform floor	Clean floor and check condition of floor plates missing bolts. Replace if necessary.
	15. Lubricating	See the instructions in the "Lubricating diagram". Also check racks for possible damages and attachment when lubricating.
	16. Optional under platform obstruction protection system, where applicable	Check attachment and wiring. Also make certain that the work platform cannot start with an obstruction between the transmitter and receiver.
120 operating hours or at least 6 times a year	21. Mast	Check visually that all mast bolts are properly tightened. Also check the bolts for attaching the mast to the chassis.
	22. Mast ties, where applicable	Check that all bolts in all mast ties are properly tightened. Also check attachment to structure.
	23. Limit switches and cams, and final limit switch with associated cams	Check attachment and function.
	24. Gates, railings and protection covers	Check the function and attachment.
	25. Buffers for platform	Check that the buffers are in position and are in proper condition.
	26. Signal equipment and lighting	Check the function of the control device, alarm signal, and, where applicable, voice communication system.
	27. Rack and pinion	Check the wear on the rack and pinion according to the instructions under the heading "Adjustment and wear limits".
	28. Worm gears	Check the wear according to the instructions under the heading "Adjustment and wear limits".
	29. Horizontal levelling equipment – for twin mast configuration	Check the attachment and function of the switches and cams. Check the mechanical function by sliding. See heading "Horizontal levelling equipment".

Interval	Part	Instructions
	30. Scaffolding adjacent to platform	Check that the distance from the platform hoistway to landings, scaffolding, balconies, windows or any other location where persons may find themselves, are not less than regulations dictate. Point out any infringements and risks of injuries to the site manager.
	31. Lubricating	See the instructions in the "Lubricating diagram".
400 operating hours or at least 4 times a year	40. Guide and counter rollers	Check wear and bearing play of the platform guide rollers. Also check that the rollers can move axially. Adjustment and replacement, when required, must be carried out by trained/authorized service personnel.
	41. Safety device	Test the safety device according to the instructions under the heading "Drop test".
	42. Electric motors	If necessary, clean the cooling flanges of the motors.
	43. Contactors	Check the condition of the contact points in the contactors.
	44. Lubricating	See the instructions in the "Lubricating diagram".
1000 operating hours or at least once a year	50. Shaft couplings	Check any play in the coupling between the motor and the worm gear with the aid of the cranking lever. If play occurs, service must be carried out by trained/authorized personnel.
	51. Electric wiring	Check all wires, sealing glands and connections.
	52. Motor overload protectors	Check that the motor overload protector is set to the rated current on the data plate for the electric motor.
	53. Deformations/mechanical damage	Inspect the equipment visually in its entirety for deformation/mechanical damage to mast tubes, diagonal members of the mast sections, gates, protective rails, floors, mast ties, etc. This inspection and any actions which may be necessary after the inspection must be performed by trained/authorized service personnel.
	54. Corrosion, damage and wear	Inspect the equipment in its entirety for corrosion and wear on loadbearing and force-absorbing components with the aid of an ultrasonic thickness measuring instrument. This inspection and any actions which may need to be taken after the inspection must be performed by trained/authorized service personnel. A method for internal corrosion protection of the mast tubes is available. Please contact your ALIMAK representative.
	55. Mast	Check that all mast bolts are properly tightened. Also check the bolts for attaching the mast to the chassis.
	56. Lubricating	See the instructions in the "Lubricating diagram".
Every 4th year or according to sign on the safety device	60. Safety device	Replace the complete safety device. Contact your Alimak representative.

Adjustment and wear limits

Platform stopping positions

If the distance between actual stopping positions empty/fully loaded platform exceeds 50 mm (2 in.), the brakes must be checked by trained/ authorized service personnel.

Checking brake torque

The platform must be brought to rest on the buffers before checking is allowed to take place.



WARNING!

Squeeze risk.

Switch off and lock power supply before checking brake torque.

Can cause severe personal injury.

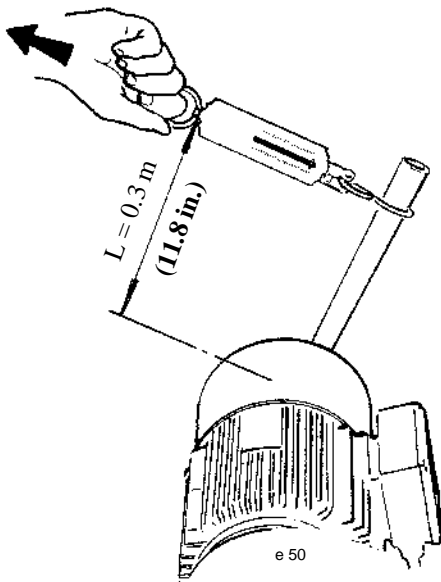
This test is carried out with the use of a spring scale.

1. Fit the ratchet spanner and a tube section according to corresponding figure.
2. Release the brake and push the spanner up and down to determine the total cog play. Then turn the spanner downwards, reapply the brake and fit the spring scale.
3. Pull up and read value on the spring scale when the brake starts to slide.

The brake torque ($F \times L$) should be min. 40 Nm (29.5 lbf x ft).

If stated brake torque is not achieved call for trained/ authorized personnel.

$F = 134 \text{ N (30 lb.f.)}$



Guide rollers

Always adjust the guide rollers in pairs, i.e. on both sides of the mast at the same time.

Make adjustment by loosening the set screw on the roller and turning the eccentric shaft, which is supplied with a spanner grip, until the correct play is achieved. Lock the position by tightening the screw.

Note: The roller play shall always be adjusted with the platform unloaded and with the rollers level with the horizontal frame of the mast.

Adjustment

- Center the frame to the mast.

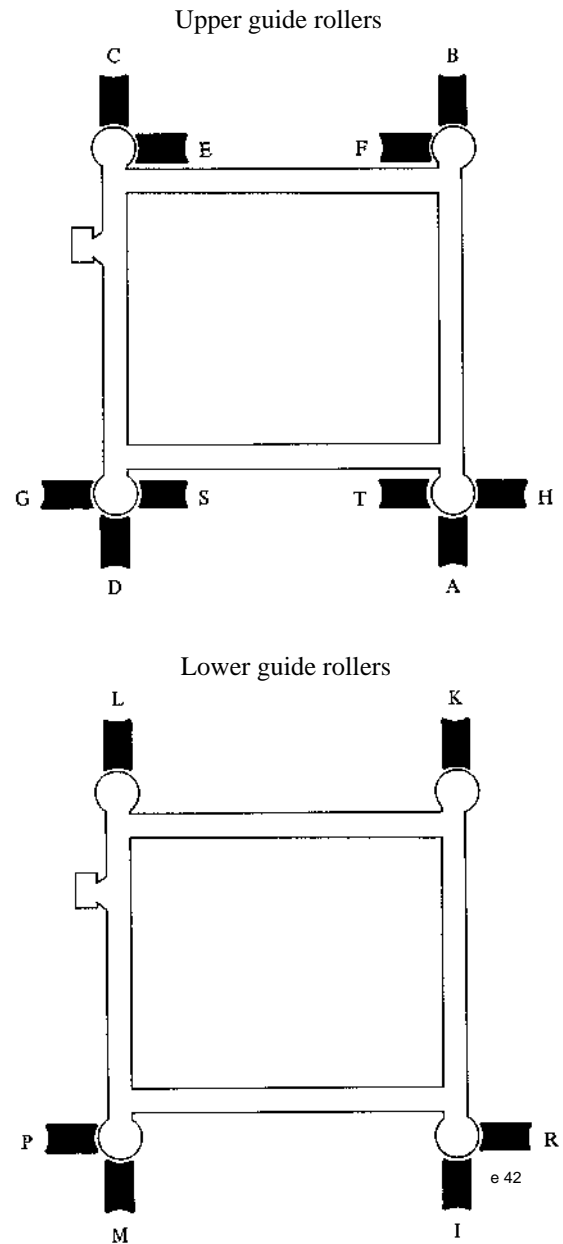
Start with the upper rollers and adjust the play as follows:

A = 1 mm (.04 in.)	B = 0 mm (close contact)
C = 0 mm	D = 1 mm (.04 in.)
E = 1 mm (.04 in.)	F = 1 mm (.04 in.)
G = 0 mm	H = 1 mm (.04 in.)
S = 0 mm	H = 0 mm
G = 1 mm (.04 in.)	S = 0 mm
G = 0 mm	T = 0 mm
H = 0 mm	T = 1 mm (.04 in.)

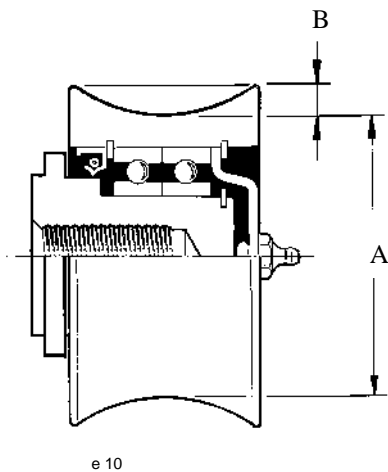
- Drive the platform upwards a few centimeter and adjust the lower rollers as follows:

I = 0 mm	K = 1 mm (.04 in.)
L = 1 mm (.04 in.)	M = 0 mm
P = 1 mm (.04 in.)	R = 0 mm

- Readjust the rollers E, F, G and H so that the pinion is in parallel position with the rack.



E 6



e 10

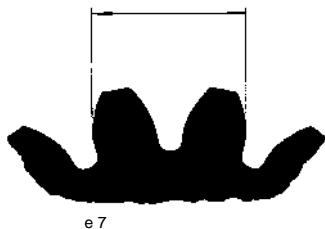
Guide Roller

Measure with sliding caliper.

Dimension	New roller (mm)	Max. worn-out roller (mm)
A	Ø 74 (2.91 in.)	min. Ø 68 (2.68 in.)
B		min. 4 (.16 in.)

Note that the "wear" on the roller face must be equal – all around.

Max. worn gear 35.8 mm (1.41 in.)



e 7

New gear 37.1 mm (1.46 in.)

Pinion

Check the wear with the aid of sliding calipers.

The counter roller for the pinion must be changed when the pinion is replaced.

New rack



e 8

Max. worn rack



Rack

Measure the wear with the Alimak rack gauge part No. 9019 645. If the gauge reaches the bottom, the rack must be replaced.

Control of cog in worm gear



WARNING!

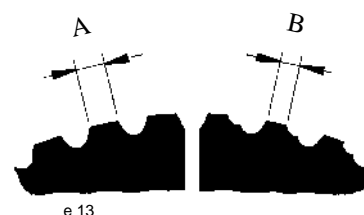
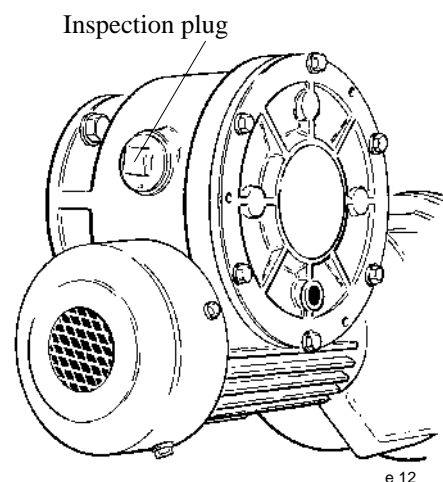
Squeeze risk.

Switch off power supply before inspecting the worm gear.

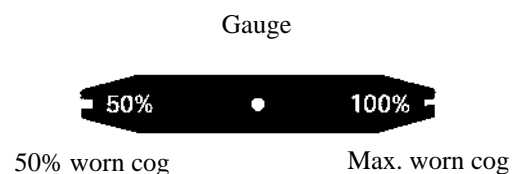
Can cause personal injury.

Unscrew the inspection plug on the gear housing and check the wearing of the worm wheel.

Place the gauge with the end marked 100% perpendicular and in the centre of one of the cogs. If the groove enters the cog, the worm wheel is worn out. If not – turn the gauge and check if it is more/less than 50%.



Gear ratio	A New cog mm	B Max. worn cog mm	Gauge Part. No.
10.25 : 1	3.6 (.142 in.)	2.6 (.102 in.)	9030 153-107



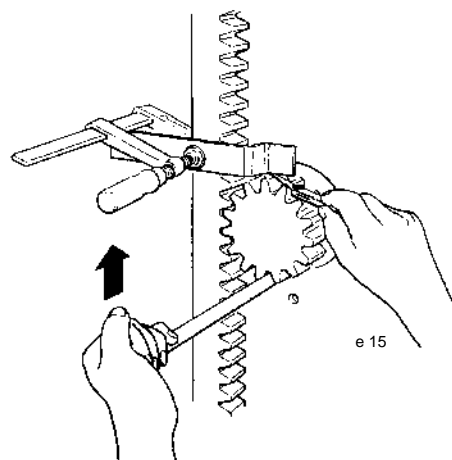
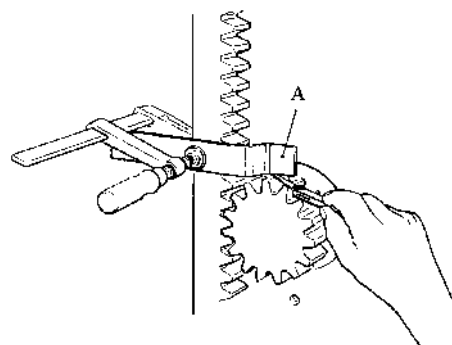
Measuring the radial play of the rotating shaft on the safety device

IMPORTANT! Do not lubricate the safety device before test.

1. Clamp a support (A) on the rack with the aid of a C-clamp – approximately 1 mm (.039 in.) above the safety device pinion.
2. Measure the play with a feeler gauge.
3. Lift the pinion with the aid of the cranking lever from the hoist tool kit or some other suitable tool and measure the play again.

Note that the pinion may not be turned but must remain in precisely the same position during both measurements.

4. The difference between the two measured values is the radial play in the safety device shaft.
5. If the radial play is greater than 0.6 mm (.024 in.), the safety device must be replaced.



E 8

Brake inspection

To be carried out by trained service personnel.



WARNING!

Unintended operation

Bring the platform down to rest on the buffer springs. Switch off, lock and tag the main switch before inspection can take place.

Can cause severe bodily injury or death.

Inspecting brake condition

Check airgap between pressure plate and brake coil body with the aid of a feeler gauge.

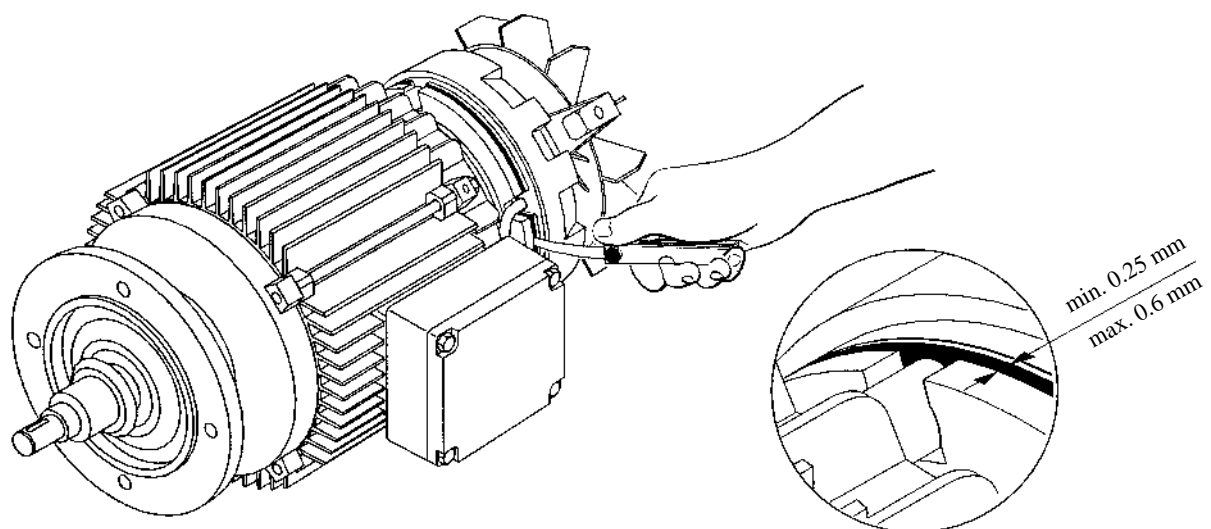
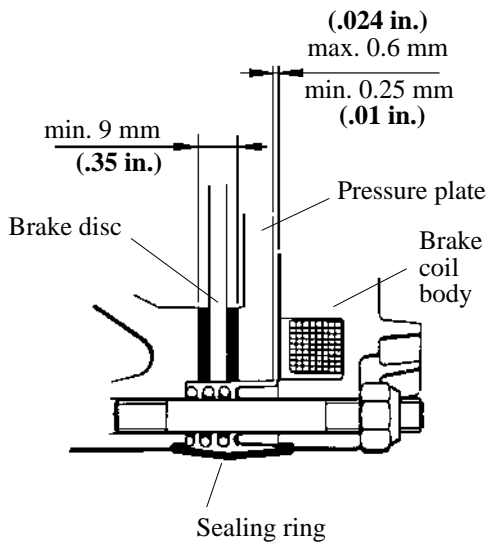
1. Tighten hexagon nuts on stud bolts until minimum permissible airgap is obtained, between brake coil body and pressure plate.
2. Measure rotating brake disc. Replace disc when it is worn down to 9 mm (.35 in.).

At the same time remember to readjust the horizontal levelling equipment for the platform in twin mast configuration.

If the brake cannot be electrically released, check:

- that the rectifier is in order and energized.
- that the brake contactor is in order.
- the voltage to the magnet coil (nom. 195V DC).
- the resistance of the coil (nom. approximately 121 Ohm).

Replace electromagnet housing with coil if the coil is defective.



Drop test

To be carried out by trained service personnel.

A drop test with full load shall be carried out for each new installation and then at least once every 3 months – or in accordance with local safety regulations.



DANGER!

Brake malfunction hazard

No one is allowed on the platform during a drop test.

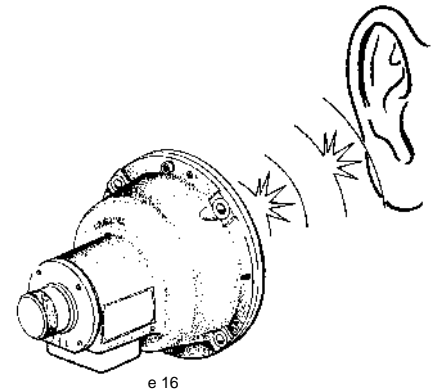
Will cause severe bodily injury or death.

If the safety device begins to trip or if noise occurs in the safety device during operation, the platform must be taken out of service immediately and the local ALIMAK representative notified for action.

CAUTION! In twin configuration both drive units must be tested at the same time, each with its own drop test cable – mechanically connected.

1. Testrun the platform in upwards and downwards direction to ensure that the brakes have sufficient brake torque.
2. Connect the drop test cable to the terminal block marked "Drop test" inside the platform electric M-panel.
3. Attach the cable to the railing adjacent to the electric panel and lower the pushbutton box outside the railing to the ground. At the same time, check that the cable is suspended in such a way that it cannot be crushed or be obstructed when the drop test is carried out.
4. Load the platform with full load. Switch on the main ON/OFF switch and run the platform from the ground level up approximately 1.5 meters (5 ft.) by means of the button on the pushbutton box on the testing cable.
5. Press the button on the drop test pushbutton box marked with an arrow symbol and maintain it in the depressed position. This releases the motor brakes and the platform will drop until it reaches the tripping speed and the safety device is actuated.

Release the pushbutton immediately if the safety device does not function and stop the platform – at least 0.5 meters (approximately 2 ft.) above lower normal landing level. The brake(s) is applied when the pushbutton is released.



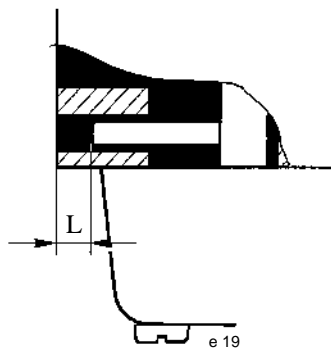
e 16



Drop test must be carried out with full load.

e 17

6. Run the platform upwards 0.2 meters (**8 in.**) to release the mechanism of the safety device. Slide the platform to the normal lower landing level with the drop test equipment and the pushbutton with the arrow symbol.
7. Remove the test cable.
8. Check that the microswitch in the safety device functions by test running the platform downwards with ordinary operating equipment.
9. Reset the safety device in accordance with instructions to be found on next page:



Calculating the stopping distance before resetting

The safety device stopping distance can be measured between the end face of the safety device and the end of the indicating pin – measure "L", see figure.

Multiply measure "L" with factor 118 for safety device type GF.

CAUTION! The safety device must be exchanged if measure "L" exceeds the value stated on the safety's sign.

Resetting the safety device

If the safety device trips during normal operation, a careful check must be made of the motor brake(s), transmission, pinion, rack and all guide and counter rollers by trained /authorized service personnel, before the safety device can be reset. The cause of the tripping must be determined and rectified.

The safety device may be reset after a drop test, without having to carry out the checks listed above.

Exchange intervals, see sign on safety device!



WARNING!

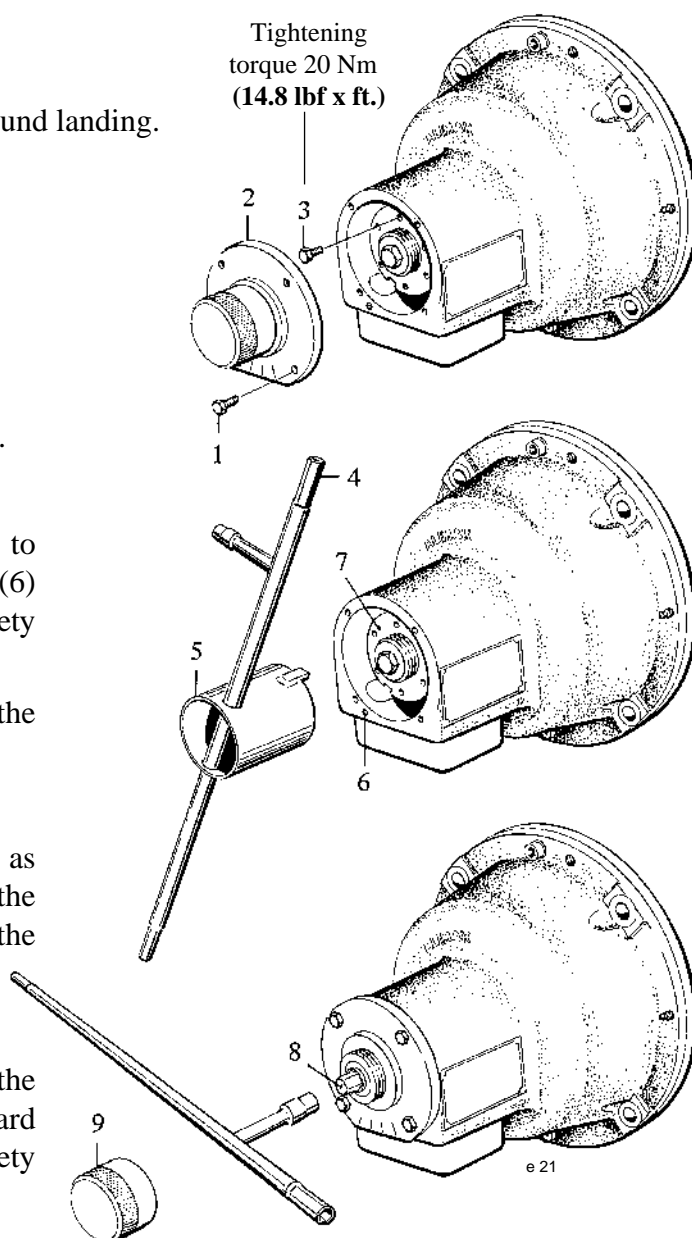
Falling hazard

Never reset the safety device above ground landing.
Can cause severe injury or death.

Resetting

To be carried out by trained service personnel.

1. Switch off the main switch.
2. Unscrew the bolts (1) and remove the cover (2).
3. Unscrew the bolts (3).
4. Use the sleeve (5) and the cranking lever (4) to back off the nut (7) until the end of the pin (6) is on a level with the end surface of the safety device.
5. Install the bolts (3) and the cover (2) with the bolts (1).
6. Remove the protective cover (9).
7. Tighten the bolt (8) by hand as far as possible and then a further 30° with aid of the sleeve and the cranking lever (4) – in the direction indicated by the arrow on the cover.
8. Reinstall the protective cover (9).
9. Switch on the main switch and run the platform up approximately 20 cm (8 in). upward to reset the centrifugal weight of the safety device in its neutral position.
10. Make a test run.



From a safety point of view the safety device must never be dismantled more than is necessary to reset it as described above. For this reason the safety device is sealed.

Lubrication diagram

The oil in the worm and cog gear shall be changed after the first 25 operating hours.

INTERVAL	ITEM	LUBRICATING POINT	LUBRICANT	VOLUME	INSTRUCTIONS
20 operating hours or at least once a week	1	Intermediate pinion of end transmission. Valid for Aliclimber 3900 only!	Grease Shell Malleus or equivalent		Grease the pinion with a brush all around.
40 operating hours or at least once a month	2	Gear/-s			Check oil level.
	3	Rack	Alilube Part No 3001 396-201		Lubricate during lowering and take platform out of operation for 2-3 hours to permit the spray to congeal.
	4	Chassis steering link rods	Grease		Grease nipples.
	5	Chassis travel machinery transmission	Grease		Grease nipples and slide surfaces.
	6	Safety device	Grease		Grease nipples.
	7	Outrigger mechanical jacks	Grease		Grease nipples.
	8	Pedestal base mechanical jacks	Lube oil		Lubricate according to the following instructions.
	9	Gate lock, mechanical interlock and Teleflex cable	Lube oil		Lubricate bearings and slide surfaces.
	10	Mech. horizontal levelling equipment and Teleflex cable	Lube oil		Lubricate bearings and slide surfaces.
	11	End transmission on the rear of machinery plate. Valid for Aliclimber 3900 only!	Grease		Grease nipples.
	120 operating hours or at least 6 times a year	15	Guide rollers	Grease	
1000 operating hours or at least once a year	20	Gear/-s	Alioil HD	7.0 lit. (1.85 US gallon)	Change oil.

The lubricating oil grades indicated above have been used when the equipment is delivered from the factory. Only oil recommended by ALIMAK shall be used. If for some reason this is not possible, please contact ALIMAK or ALIMAK representative for advice.



WARNING!

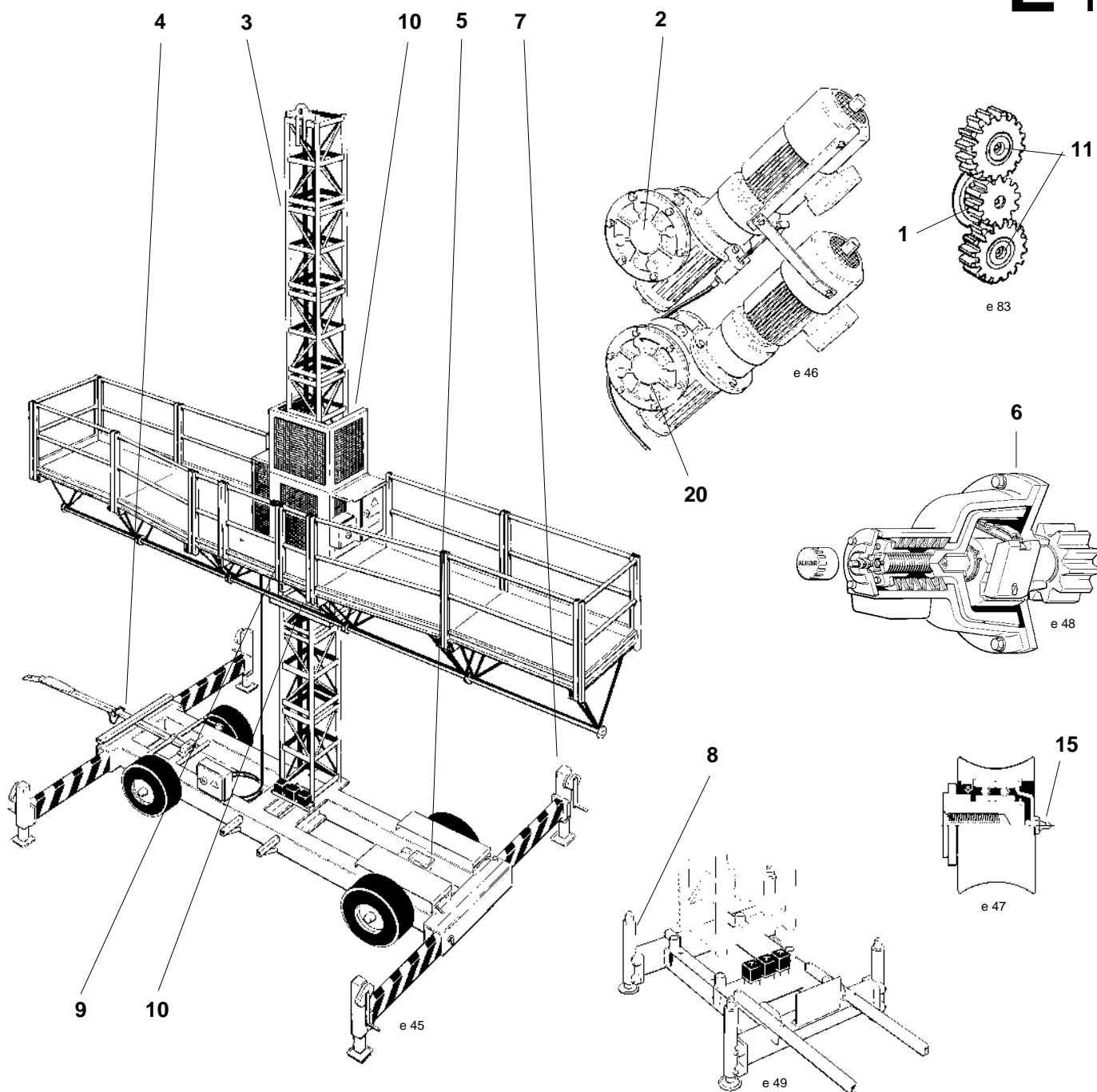
Lubricant harmful in contact with skin and lungs.

Always use protective gloves and dust mask.

Possible risks of irreversible effects.

See applicable MSDS (Material Safety Data Sheet).

Internet: <http://www.alimak.se>



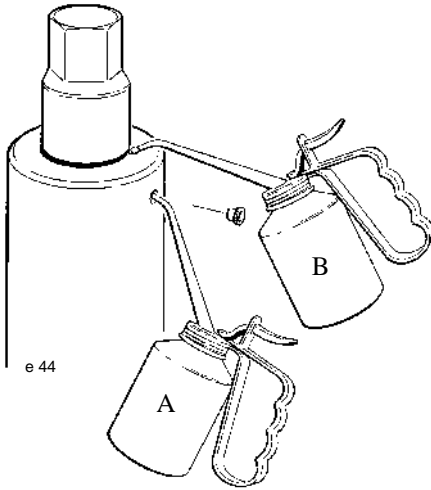
WARNING!
Falling hazard.

Always use a fall arresting device if there is a need to climb above the safety railing to reach the rack or items to grease or inspect.

Can cause severe injury or death.



E 14



Greasing the manual screw jacks – applicable for pedestal base only

1. Remove the plastic plug on the jack case.
2. Insert the tip of the lubricating can into the hole as shown (A) and generously lubricate both the screw threads and axial bearing.
3. Extend jack piston until there is a play between the jack case and the spanner grip.
4. Fill oil in this space as shown (B).
5. Reinstall the plastic plug and reset the jack to retracted position.

Electrical troubleshooting	F 1
Example	F 3
Circuit diagram	

Electrical troubleshooting

All forms of troubleshooting require adapting the procedure to the function and structure of the equipment and to other conditions which may be local in nature. For example, the erection site, maintenance, previous operational problems, etc.

The main principles of all forms of troubleshooting in electric systems are presented below. Troubleshooting is carried out with the aid of a test lamp or voltmeter. A voltmeter is recommended, preferably a universal instrument, for rapid and reliable troubleshooting.

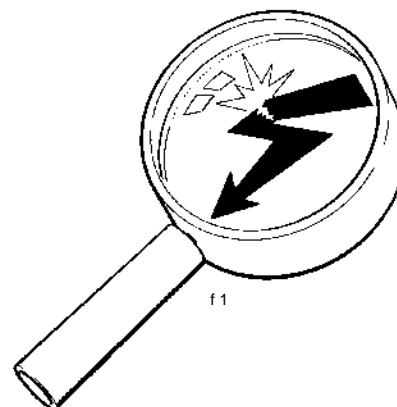


WARNING!

Hazardous voltage.

Only authorized electricians or authorized service personnel can carry out work on the electrical equipment.

Can cause severe injury or death.



Procedures for troubleshooting

1. Use the circuit diagram. This diagram is located in a box on the platform. The diagram indicates how the electrical equipment should function, how it is built and connected.
2. Begin by checking that power is supplied on all three phases of the incoming main voltage.
3. Check that the outgoing power cable receives power when the main switch is switched on.
4. Now begin troubleshooting on the platform by checking that the power reaches the platform.
5. Check that the stop circuit is not open, in other words that thermal relays and phase failure relays have not been actuated and that the limit switches for the safety device, final limit switch, and other limit switches have closed contacts. Make sure that the stop button is not in the depressed position. When the stop circuit is closed, the main contactor will be in the "On" position.
6. Check with a voltmeter/test lamp that the limit switches for "Up" and "Down" function properly.
7. Connect the voltmeter/test lamp between the zero terminal and the terminal as indicated on the circuit diagram, and check that power is supplied where it should be supplied. Go through each terminal, one by one, and work methodically so that the circuits which function correctly can be eliminated and the fault can be localized.

8. Check in the electrical M-panel to ensure that power occurs on all three phases of the incoming cable.
9. Check that the "Up" and "Down" pulses from the pushbuttons and control devices reaches the electric cabinet on the platform in the intended manner.
10. Make a trial run and check that the coil on the relevant contactor (Up, Down) receives power and that it is actuated. Check that the brake contactor is actuated and that the brake coil is energized so that the brake releases.
11. If the fault does not occur in the platform operating system but in its lighting or signal system, carry out fault-tracing in a manner similar to that described above. Check the circuits methodically one by one until you have narrowed down the fault and localized it.

Experience shows that certain faults have symptoms which, may indicate the cause and the probable location of the fault:

Example:

Symptom	Probable cause	Probable fault location
a) Control fuses blow immediately.	Short-circuit, equipment grounded.	Damaged power cable, damaged pushbutton, limit switches etc. externally located.
b) Fuse blows after a short period of time.	Equipment partially grounded, overload.	Dampness or water in junction box, limit switch etc. due to damaged electrical components. Improperly connected equipment.
c) Platform stops or cannot be started.	Limit switch in stop circuit has tripped/been actuated, blown fuse.	Stop pushbutton depressed, thermal relay actuated due to overload or careless operation, *switch in safety device actuated, power failure from supply. See also a) and b) above.
d) Platform stops and can be restarted, but then stops again.	Switch actuated in the stop circuit.	Switch in stop circuit improperly positioned.

*The switch is set at the factory and may not be adjusted.

F₃

Example

Main principles for electrical troubleshooting in stop circuit – control voltage 110V/50Hz or 127V/60 Hz.

The terminal numbers listed below apply to this diagram only. The procedure for testing other electrical equipment with other terminal numbers is carried out in a corresponding manner as described below.

1. Switch on the main ON/OFF switch and close gate (gates).
2. Check that the final limit switch is in the ON position.
3. Obtain the circuit diagrams and lists which are kept in the cabinet on the platform.
4. Test with a voltmeter or test lamp between the zero terminal and the terminals in the electric cabinet as described below:

Test	Result	Conclusion
Between the zero terminal and last terminal in stopping circuit. Terminal 326 according to diagram in example above.	no reaction	fault located in stop circuit

Test each terminal in the stop circuit systematically, beginning from the transformer.

between zero terminal and terminal 301	reaction, the circuit is intact to and incl. terminal 301
between zero terminal and terminal 302	reaction, the circuit is intact to and incl. terminal 302
between zero terminal and terminal 304	reaction, the circuit is intact to and incl. terminal 304
between zero terminal and terminal 305	no reaction, the circuit is not intact to and incl. terminal 304 and 305. Probable fault location: element C 2. The diagram indicates that C 2 is the safety device limit switch, located on the platform.

Reason

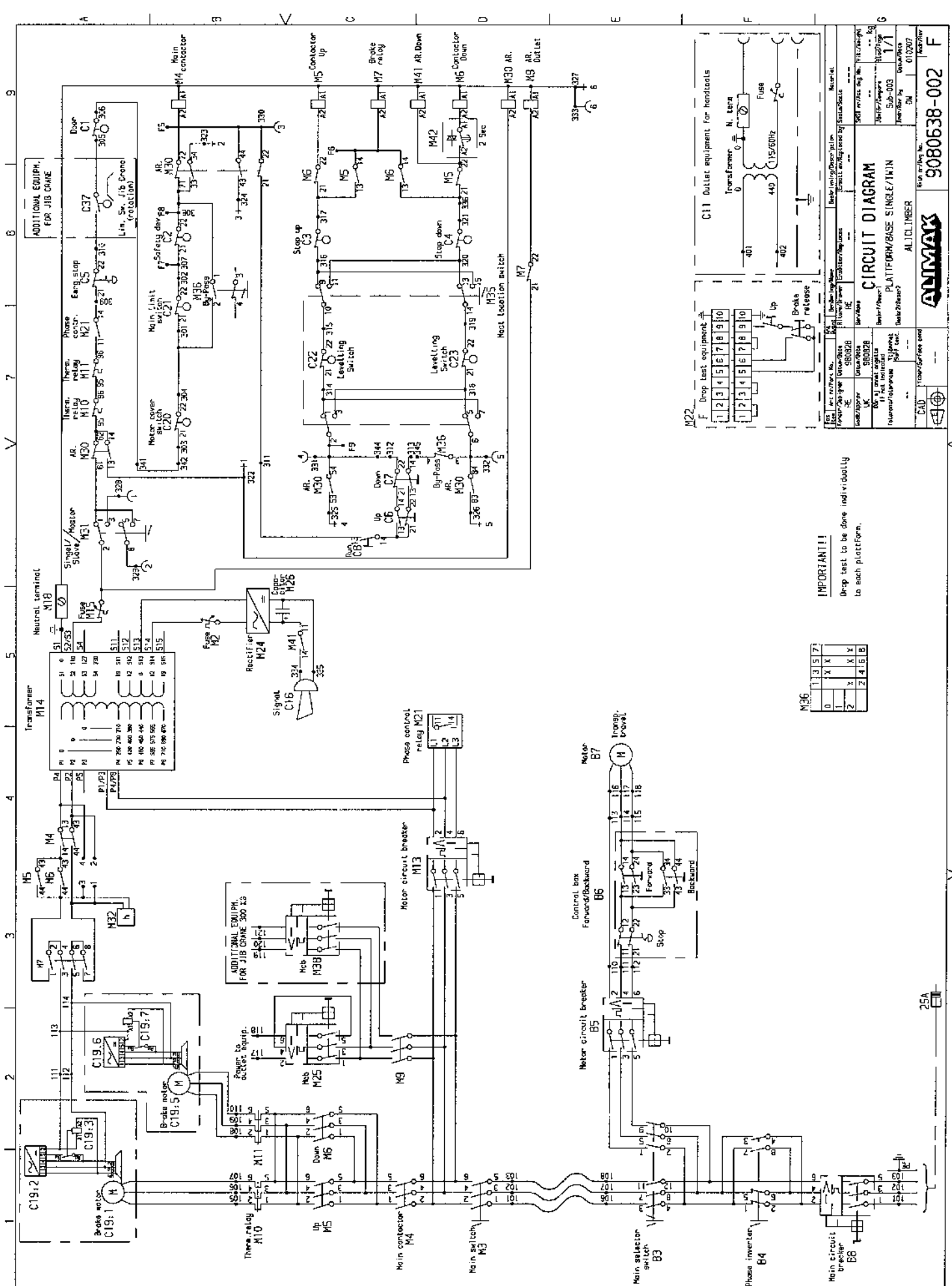
The switch may have been actuated because of:

- a foreign object between the switch and the cam.
- to heavy load and therefore excessive speed.
- motor brake is out of order.

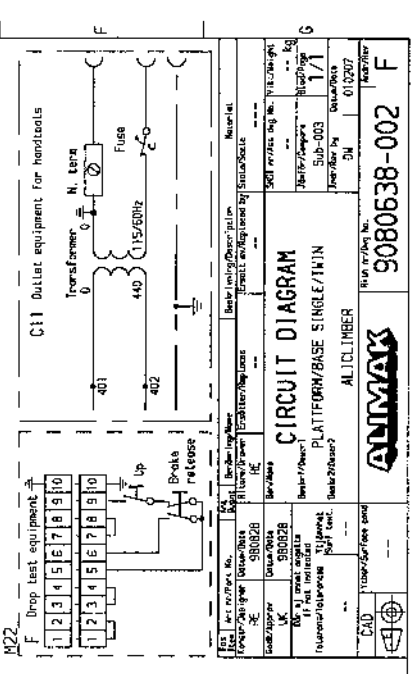
Action

Check the mechanical function and connection of the switch.

The cause of the tripping must be determined and rectified.



This document is our property and shall not be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without our prior written permission. © 2001 WED MAR 21 2001



IMPORTANT!!!
 Drop test to be done individually to each platform.

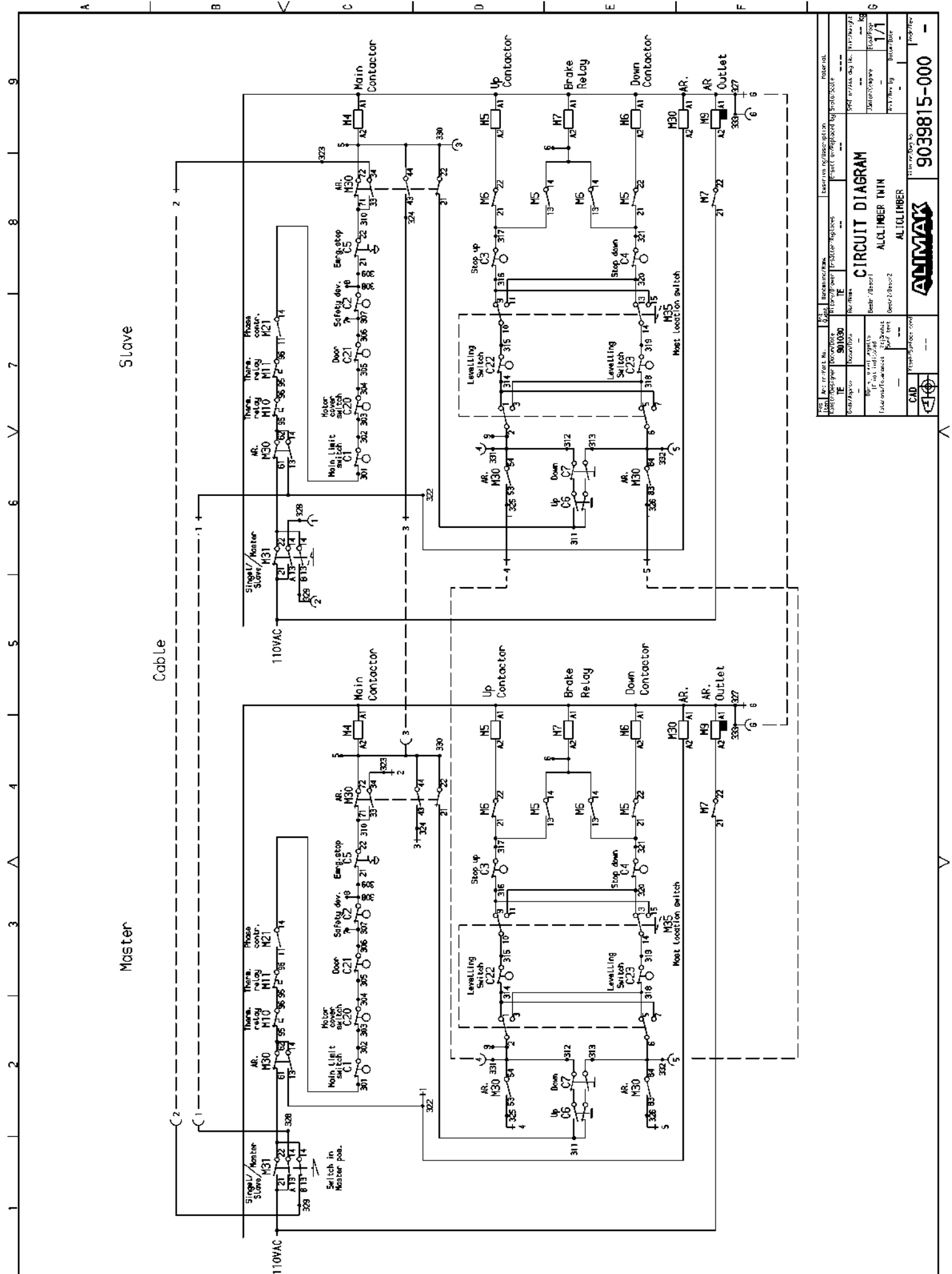
M36	1	2	3	4	5	6	7	8	9	10
0			X	X						
1					X	X				
2							X	X	X	
3										X

CIRCUIT DIAGRAM
 PLATFORM/BASE SINGLE/1WIN
 ALICLIMBER

Serial No. 9080638-002

Rev. 1/17
 Rev. 2/03
 Rev. 3/03

25A



Slave

Master

Cable

Part No.	901030	Part Name	CIRCUIT DIAGRAM
Rev.	1	Issue Date	11/11/01
Drawn By	TE	Checked By	TE
App'd By	TE	App'd By	TE
Part No.	901030	Part Name	ALCLIMBER TWIN
Rev.	1	Issue Date	11/11/01
Drawn By	TE	Checked By	TE
App'd By	TE	App'd By	TE
Part No.	9039815-000	Part Name	ALCLIMBER
Rev.	1	Issue Date	11/11/01
Drawn By	TE	Checked By	TE
App'd By	TE	App'd By	TE

Before setting up	G 1
Connection to power supply	G 2
Ground pressure	G 3
Erection of single mast platform with pedestal base	G 4
Setting up on mobile chassis	G 6
Erection of single mast platform with mobile chassis ...	G 8
Erection of twin masted platform	G 9
Electrical/mechanical horizontal levelling equipment ..	G 10

Before setting up

Delivery inspection

Check the delivery against shipping lists and look for transport damages. Should there be any damage, report same to the responsible transport insurance company within 7 days from the date of arrival of the goods.

Other claims should be made to ALIMAK representative within the same period.

Permission

Make sure the chosen erection site meets the requirements set by safety and regulatory authorities and that where required, authorization to install and use has been granted.

Also check that the erection site is suitable with regard to local wind conditions – if structures nearby create tunnel effects.

Erection site

Prepare installation so that electric power, light, lifting equipment and tools are available, and that roads and the site can receive the platform and the platform transport.

The Aliclimber **MUST NEVER** be installed on mud, snow, ice, or on unsuitable footings.

Where possible, preassemble of mast ties. Suitable places for attaching the ties are balconies or other concrete or steel structural members. Remember that these structures must be strong enough to withstand the force of the ties and it is the responsibility of the user / owner to ensure that in fact is so.

Height of guards rails for platform / extension facing the structure must be according to local regulations.

Note that the distance between the work platform and another machine **MUST NOT** be less 0.5 meter (**1 ft. 8 in.**).

Safety Equipment and Protective Clothing

Regulated safety equipment and clothing such as hard hat, safety shoes, fall arresting devices, etc. shall be used.

Electrical power supply

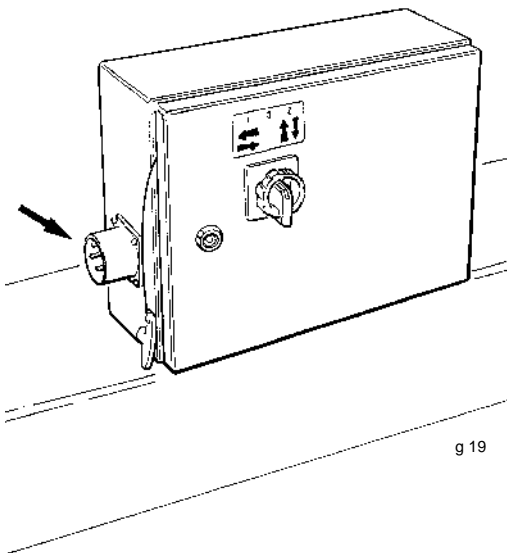
Prepare for the power supply from its source. Make sure that the power supply cable is properly sized so that voltage drop is minimized.

Maximum permitted voltage drop, measured at motor, at 380V = 19V, and at 480V = 24V, which is equal to 5%.

Minimum required conductor size and fuse specifications are indicated in the table below.

No. of motors on the same power outlet	Conductor size sq. mm	Fuse* Amp. delay action
1 x 3 kW	5 x 2.5 (AWG No. 14)	20
2 x 3 kW	5 x 2.5 (AWG No. 14)	20
4 x 3 kW	5 x 6.0 (AWG No. 10)	32

* In order to avoid single phasing, if main fuse should blow, we recommend use of three-phase circuit breaker.



g 19

Connection to power supply

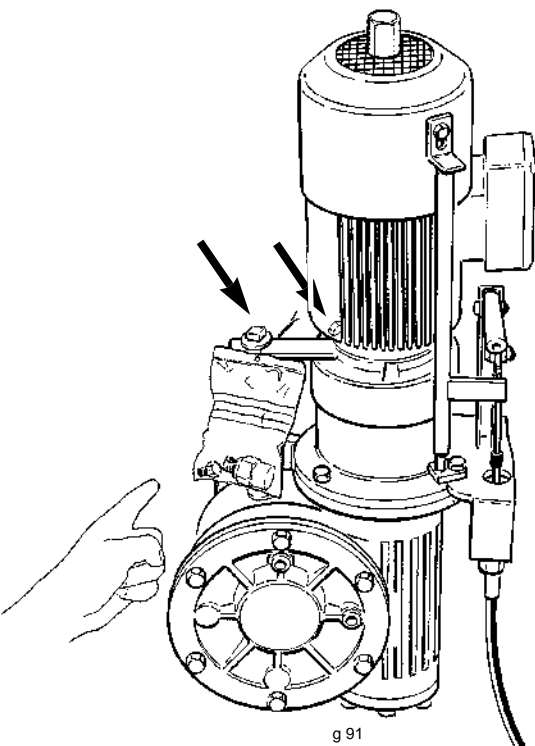
Power input connection to the chassis electrical cabinet should be made with a minimum of 5 x 2.5 mm² cable (**approx. AWG No. 14**).

Turn on the main switch and check that the machine has been connected properly with correct phase sequence.

When phase sequence is properly connected an indication light on the phase sequence relay in the electric panel is illuminated. If the light isn't illuminated, change to the correct phase sequence by means of the change over switch inside the electric panel.

Breather filters on gears

Check that the breather filters are installed before operating the machine.



g 91

Ground Pressure

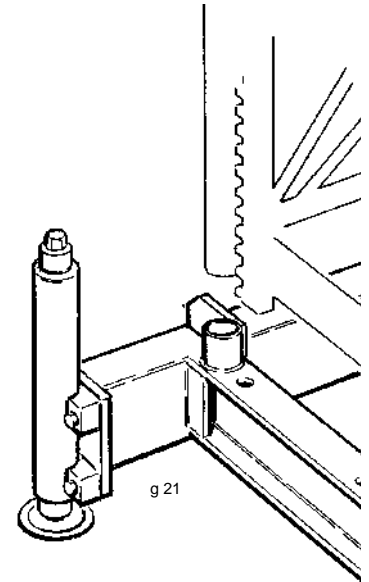
Maximum ground force P with 100 m (330 ft.) mast for:

	Aliclimber 3900 S	Aliclimber 6600
pedestal base:	44 kN (9900 lbf.)	48 kN (10 800 lbf.)
mobile chassis: ¹⁾	113.3 kN (25470 lbf.)	64 kN (14 400 lbf.)

¹⁾ Load on the center support jack.

Minimum required soil bearing pressure.

Class of material	Allowable foundation pressure Pf
1. Massive crystalline bedrock	192 kPA (4 000 psf.)
2. Sedimentary and foliated rock	96 kPA (2 000 psf.)
3. Sandy gravel and/or gravel (GW and GP)	96 kPA (2 000 psf.)
4. Sand, silty sand, clayey sand, silty gravel and clayey gravel (SW, SP, SM, SC, GM and GC).	72 kPA (1 500 psf.)
5. Clay, sandy clay, silty clay and clayey silt (CL, ML, MH and CH).	48 kPA (1 000 psf.)



Required size of the support plate or timber blocking is calculated as follows:

$$A = \sqrt{P / Pf} \text{ (m)} \quad \text{or} \quad A = \sqrt{P / Pf} \times 12 \text{ (in.)}$$

Example:

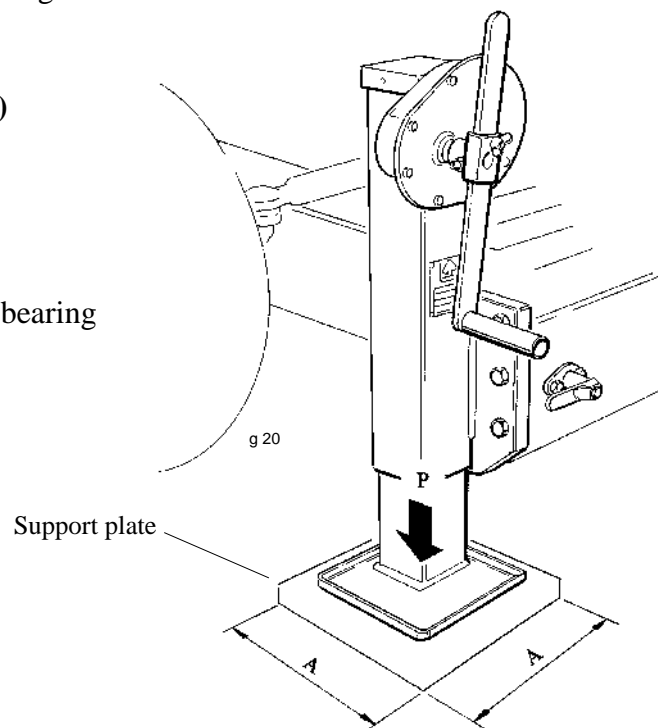
ALICLIMBER 6600 on pedestal base.

The ground consists of gravel, with allowable ground bearing pressure Pf = 96 kPA (**2000 psf.**)

Required size of the support plate is then:

$$A = \sqrt{48000 / 96000} = 0.7 \text{ m or}$$

$$A = \sqrt{10800 / 2000} \times 12 = 27.9 \text{ in.}$$

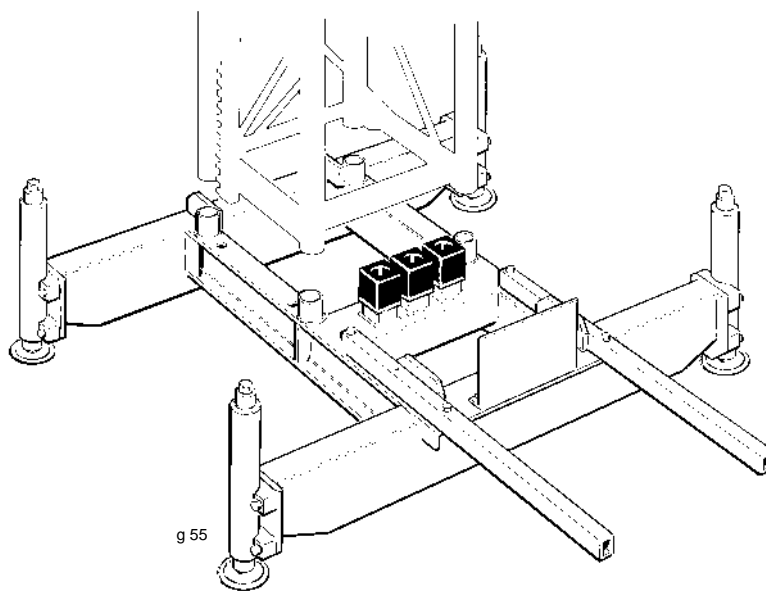


Erection of single mast platform with pedestal base

Note that mast with a pedestal base must always be tied.

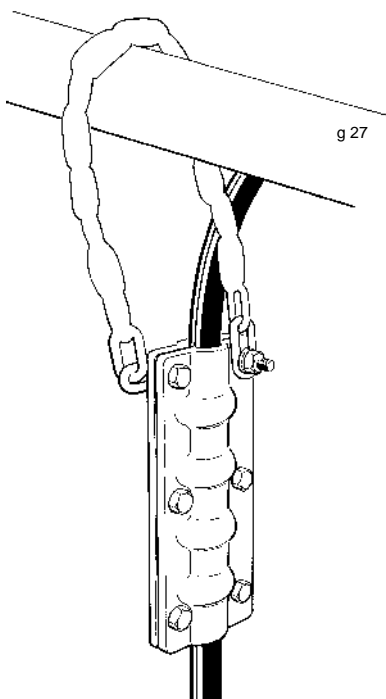
The first tie shall be mounted at a maximum height of 3 m (10 ft.) from the ground/foundation.

1. Check under the heading "Ground pressure" – to determine if the ground has the required bearing capacity.
Level the ground and if required insert blocking under the jack feet.
2. Plumb the mast by means of the jacks and the plumb indicator inside the mast.



Jack!

The ratchet and socket for the jacks are shipped in the document box, which is attached on the inside cover of the machinery.



Trailing power cable

3. Check that the jacks are equally loaded by comparing the resistance in the respective jack handle.

CAUTION: Ensure that the foundation or bedding has the necessary bearing resistance. Install support timber under the pedestal base plate. Note that the pedestal base MUST NOT rest on the levelling jacks alone.

Remove ratchet and socket after levelling to prevent unauthorized use.

4. Install the platform sections in accordance with the instructions under the heading "Assembling platform and railings".
5. Install the stair case onto the brackets on the pedestal base.

6. Connect the machine to the power supply. The trailing power cable should be installed with a cable bracket and placed as far out as possible from the mast along the platform center line.
7. Crank the machine upwards in accordance with the instructions under heading "Cranking" so that the lower final limit switch leaves the cam.

Note that when the drive unit rests on its rubber buffers the lower final limit switch rests on the limit cam and the platform cannot be operated.

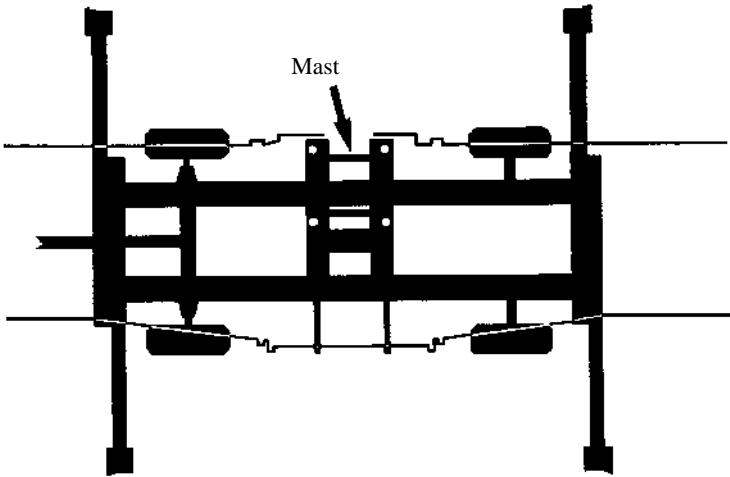
Erect the mast and mast ties in accordance with the instructions under the heading "Erection of mast".

CAUTION: Barricade the restricted area on the ground according to local regulations.

Contact ALIMAK or ALIMAK representative if mast heights above 100 meters (330 ft.) are required or if special wind conditions will require cable guides.

Setting up on mobile chassis

Condition



Description

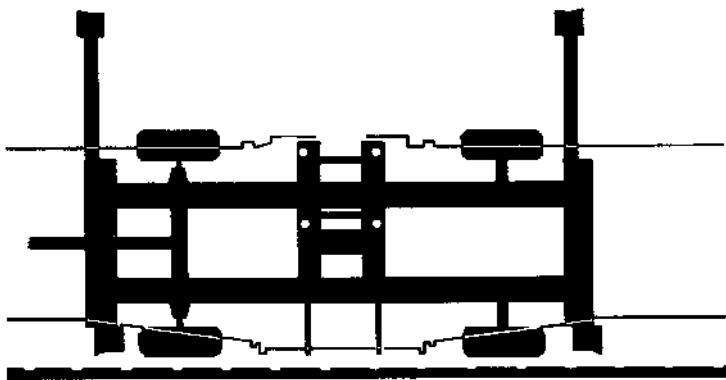
All outriggers in use and fully extended.

Normal application

Applicable when the platform is freestanding.

A = Freestanding/No wall face

Condition



Face of building/wall

Description

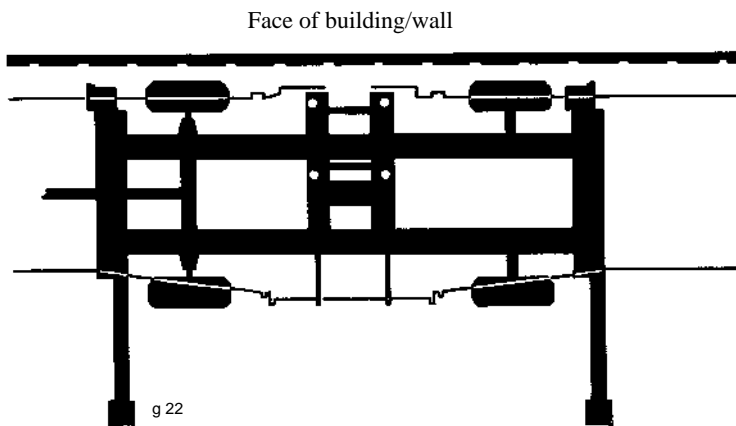
Only 2 outriggers fully extended on the same side as the mast.

Normal application

When the platform is freestanding close to wall.

B = Mast turned from the wall face

Condition



Face of building/wall

Description

Only 2 outriggers fully extended on the side opposite as the mast.

Normal application

When in the freestanding condition prior to tying the mast.

C = Mast turned towards the wall face

Refer to the chapter entitled "Technical Data & Specifications" for stability data.

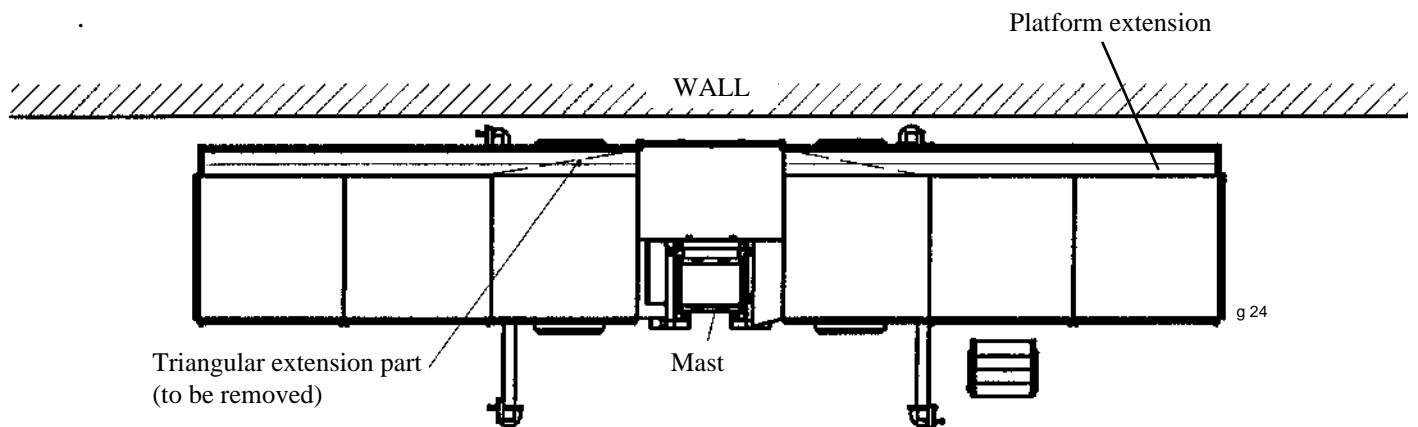
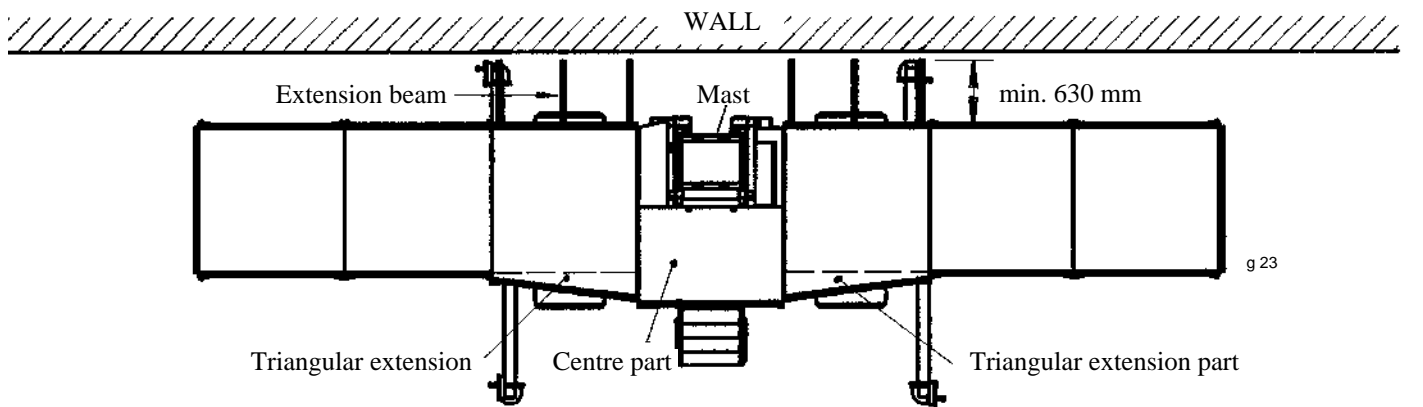
The ALICLIMBER can be set up with one or two masts and can be provided with either a mobile chassis or with a pedestal base.

The ALICLIMBER chassis can be set up with either the mast freestanding or with the mast tied. When tied, the mast must be turned towards the building.

When platform extension are required

The extension beams must always be installed before set up and mast erection.

The extension beams shall be installed in direction towards the wall.



Note that the 1.5 m (5 ft.) extension beams, when entirely retracted still stick out 290 mm (.95 ft.)

G 8

Erection of single mast platform with mobile chassis

1. Pull out the outriggers in accordance with applicable load case.

Check under the heading "Ground pressure" – to determine if the ground has the required bearing capacity. Level the ground and if required insert blocking under the outrigger jack feet.

2. Crank the jacks down until all wheels are off the ground.

The handle on the jacks has 2 positions: retracted / extended. **Retracted** which gives bigger force and lower speed. **Extended** which gives less force and higher speed.

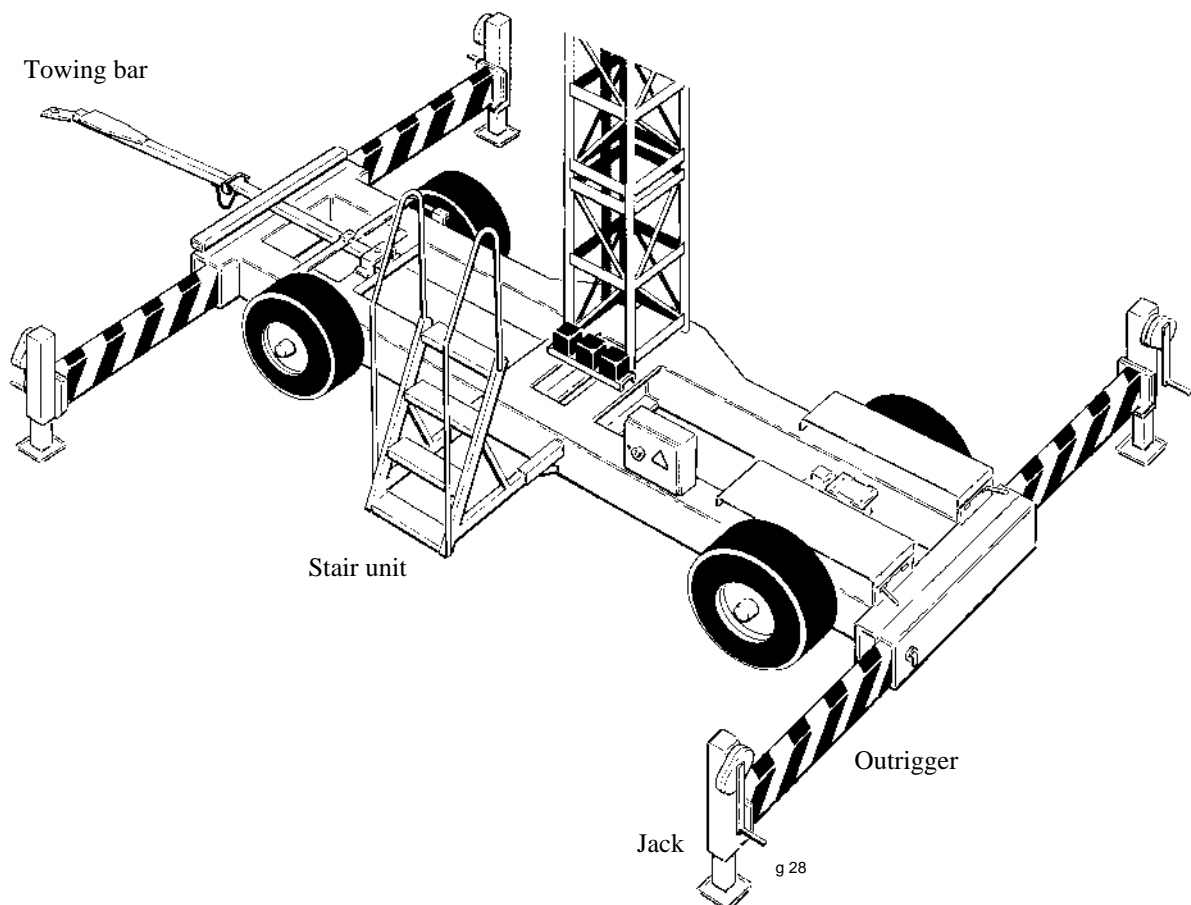
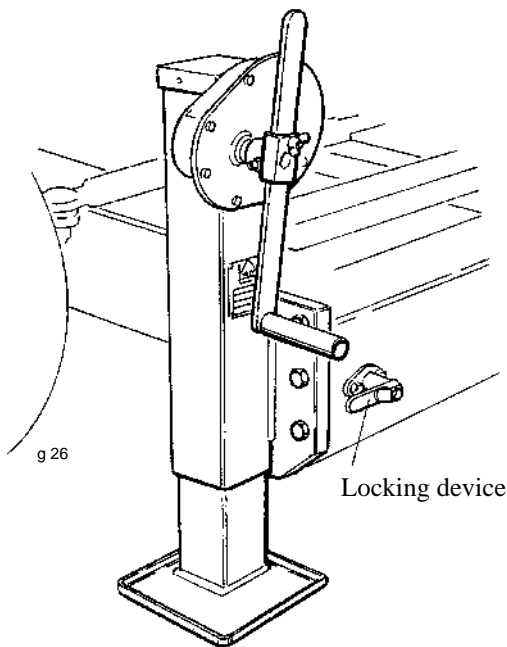
3. Plumb the mast by means of the jacks and the plumb indicator inside the mast.

4. Check that the jacks are equally loaded by comparing the resistance in the respective jack handle.

CAUTION: Remove the jack handles after levelling to prevent unauthorized use.

5. Dismantle the tow bar and place it on the chassis for safe-keeping.

6. Install the platform sections in accordance with the instructions under the heading "Assembling platform and railings".



7. Install the stair case onto the brackets on the chassis.

When the platform is erected with the mast facing away from the building/wall the stair case is provided with a separate stand.

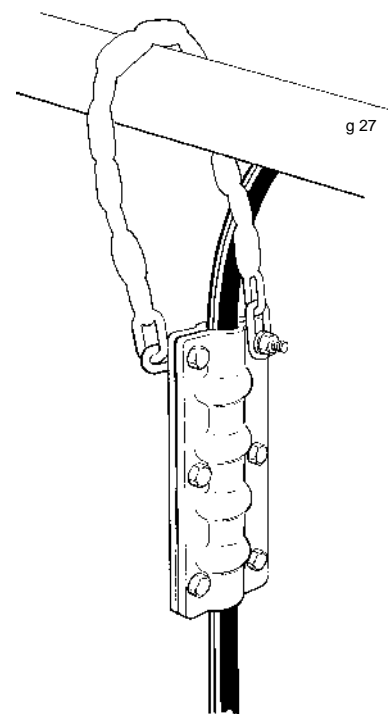
8. Connect the machine to the power supply. The trailing power cable should be installed with a cable bracket and placed as far out as possible from the mast along the platform center line.
9. Crank the machine upwards in accordance with the instructions under heading "Cranking" so that the lower final limit switch leaves the cam.

Note that when the drive unit rests on its rubber buffers the lower final limit switch rests on the limit cam and the platform cannot be operated.

Erect the mast and mast ties in accordance with the instructions under the heading "Erection of mast".

CAUTION: Barricade the restricted area on the ground according to local regulations.

Contact ALIMAK or ALIMAK representative if mast heights above 100 meters (330 ft.) are required for Aliclimber 6600 and 30 meters (100 ft.) for Aliclimber 3900 or if special wind conditions will require cable guides.



Trailing power cable

Erection of twin masted platform

- with two mobile chassis or mobile chassis in combination with pedestal base or two pedestal bases.

The erection is made in accordance with the instructions for single mast applications with the following additions.

1. Place both the single mast platforms on prepared sites close to the face of the structure and in line.

The distance between the masts shall be approximately 0.5 m (1 ft. 8 in.) longer than the complete installation will be, so that there will be sufficient space and it will be possible to assemble all the platform sections.

2. Align and connect the platforms to each other by moving one of the drive units.

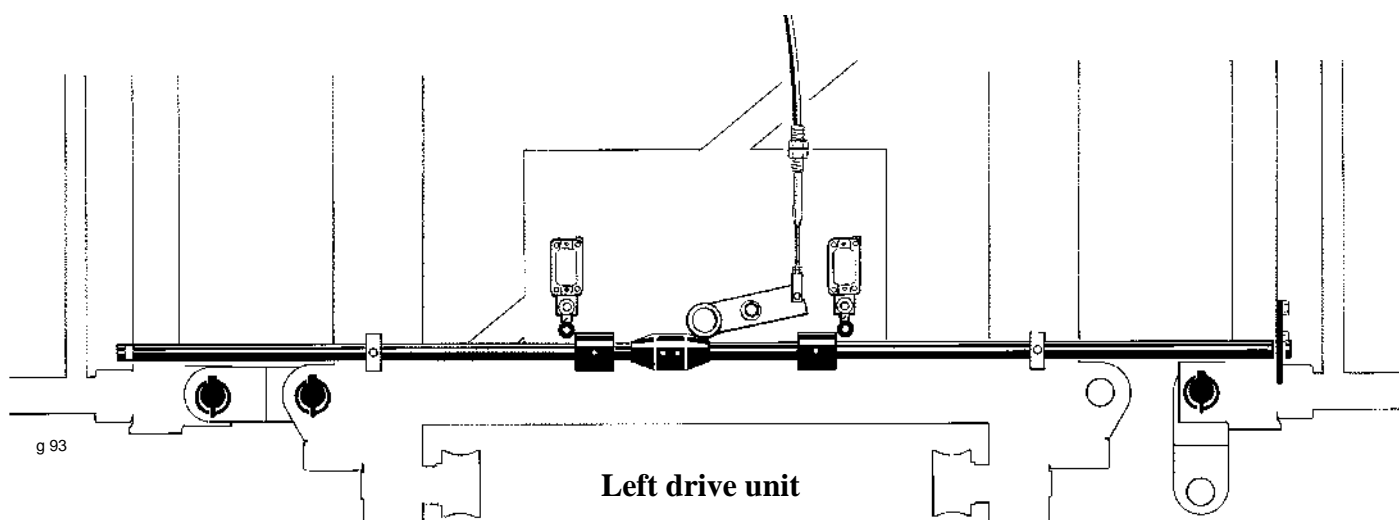
Necessary adjustments upwards are made with the jacks or by cranking the drive unit – if there is sufficient mast height.

CAUTION: The platforms must be in alignment when the platform ends are bolted together.

3. Prepare respective horizontal levelling equipment in accordance with instructions under the heading "Electrical and Mechanical Horizontal Levelling Equipment".

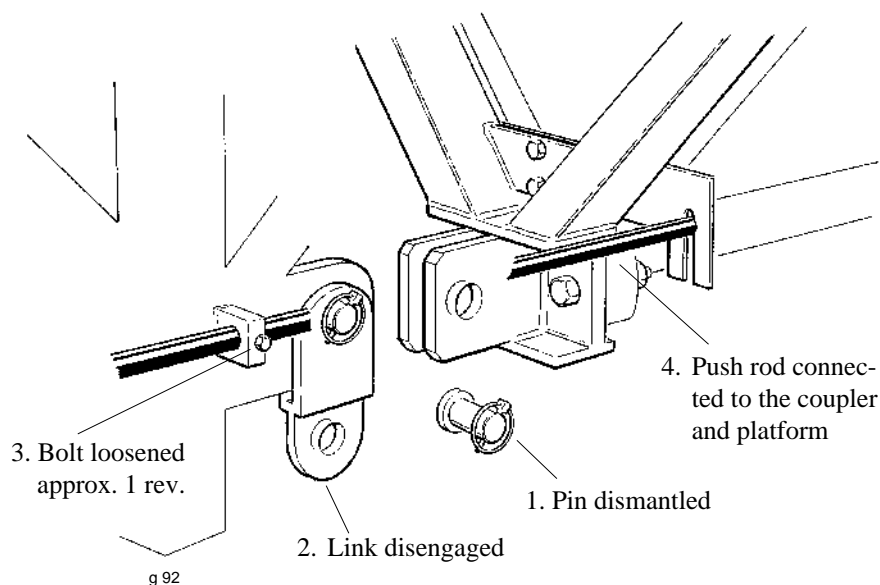
Electrical and mechanical horizontal levelling equipment for twin mast installations

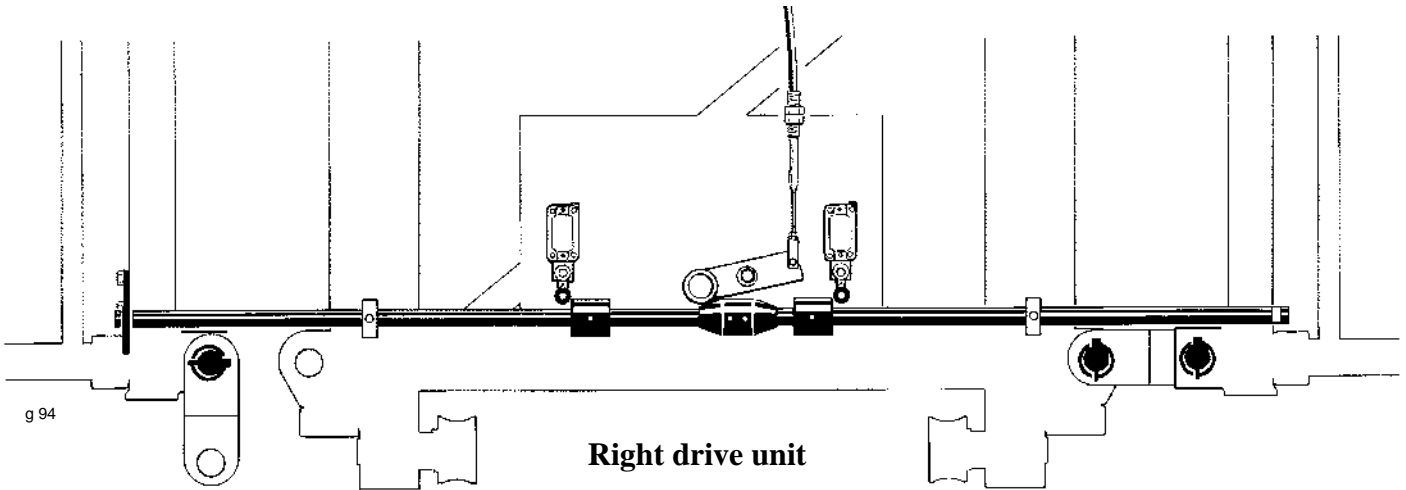
During twin configurations both drive units must be synchronized with a special electric cable and both the lower fixed connection links *between the masts* must be disengaged and the coupling plates with associated pull/push bars fitted so that the electrical and mechanical horizontal levelling equipment can work.



Mechanical connection for twin mast installations

Note: The outer corresponding connection links *MUST NOT* be removed – THIS IS VERY IMPORTANT



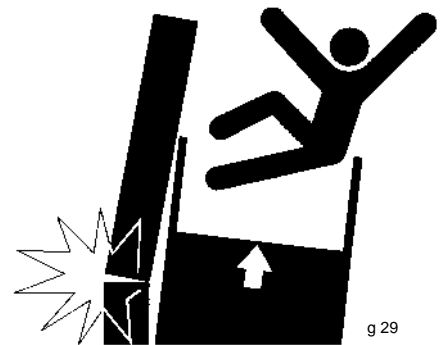


DANGER!

Missing bolt hazard.

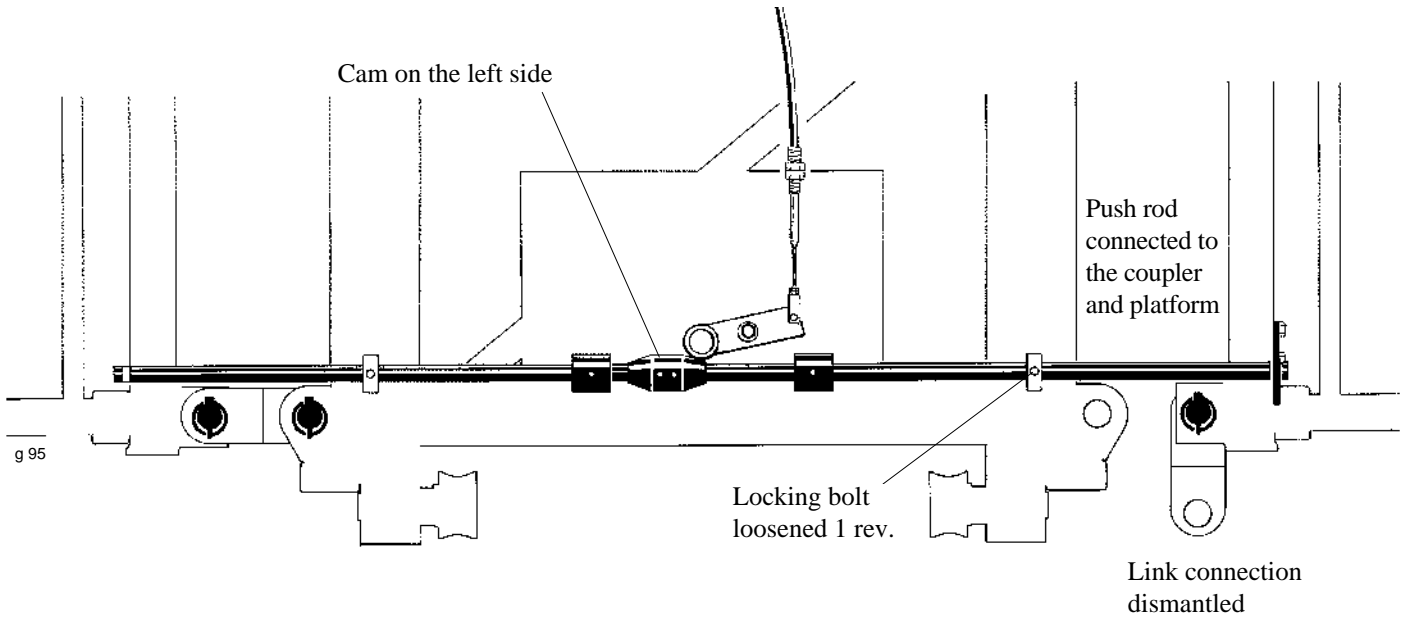
ONE person is to be made responsible for mast bolting to ensure that ALL mast bolts are installed and properly tightened.

Will cause severe injury or death.

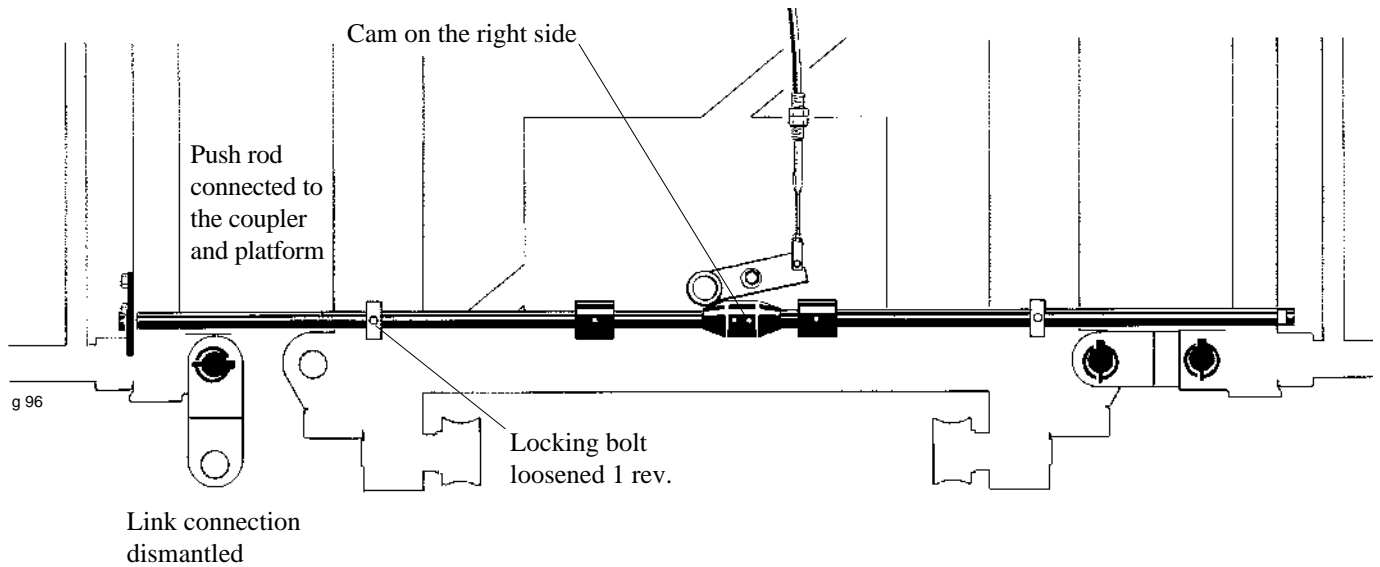


Mechanical Horizontal Levelling Equipment

Left drive unit



Right drive unit



CAUTION:

The links on the side which becomes the twin mast ends must NOT be dismantled.

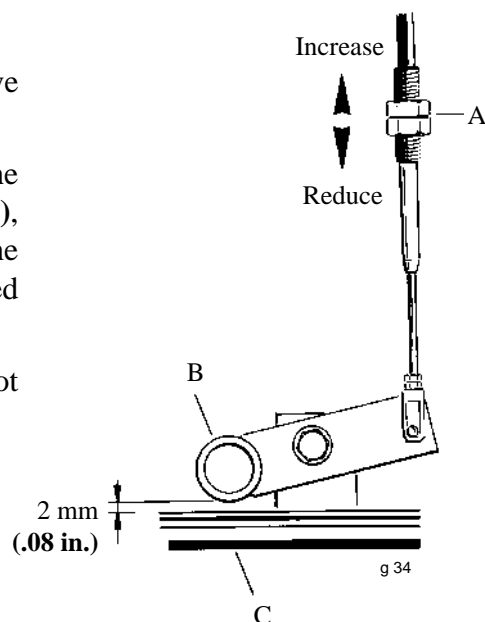
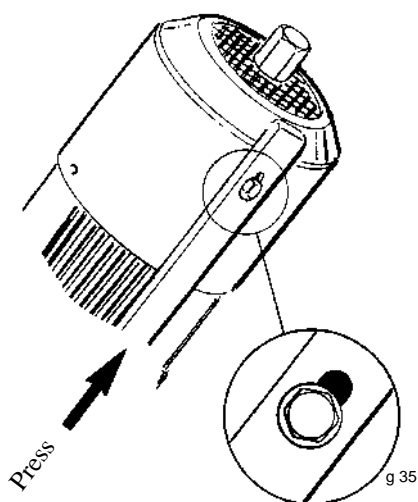
Adjustment

1. Check that the platform is level between the masts.

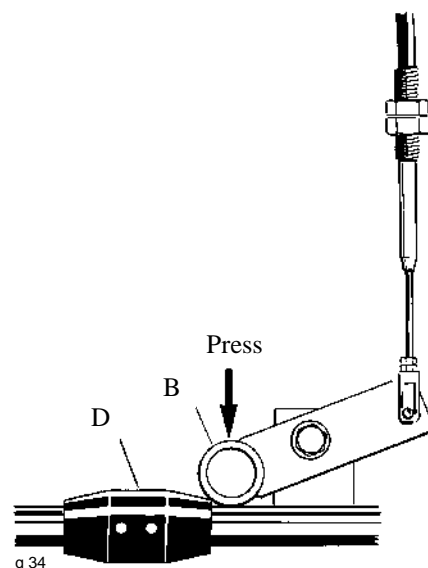
If necessary slide down with one of the drive units to achieve this. See instruction under the headline "Sliding".

2. Adjust the Teleflex cable by means of the nuts (A) so that the space between linkarm (B) and push rod (C) is 2 mm (.08 in.), when the link system with moderate force is pushed in the direction of the arrow so that the hole is in the illustrated position. The brake (s) should not be released.

If the space between (B) and (C) is too small sliding cannot take place.



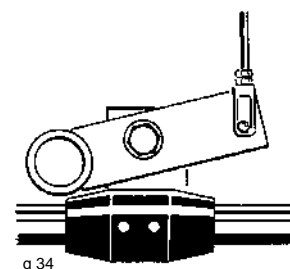
3. Release the link system and rotate the linkarm (B) until it contacts the rod. Loosen and slide the cam (D) up against the linkarm. Tighten the cam in this position.



Left drive unit

A similar adjustment shall be done with the other linksystem /drive unit.

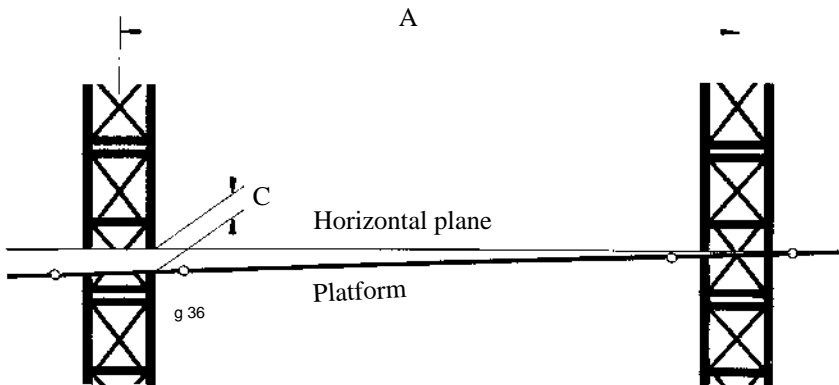
Note that the cam (D) must be on the left and right sides of the arm (B) for the left and right drive units.



Right drive unit

Functional test of mechanical horizontal levelling equipment

1. Drive the platform upwards approximately 2 m (6.5 ft.) on the mast and then switch off the main power on both the electrical cabinets.
2. Check that the platform is level between the masts.
3. Mark the positions of the drive units on the mast. Underneath these marks make new marks for maximum allowable difference in height in accordance with following table different platform lengths.



Centre distance between the masts A	Max. allowable difference in height when sliding C
7.5 m (24.60 ft.)	205 mm (8.07 in.)
9.0 m (29.53 ft.)	230 mm (9.05 in.)
10.5 m (34.45 ft.)	255 mm (10.04 in.)
12.0 m (39.37 ft.)	280 mm (11.02 in.)
13.5 m (44.30 ft.)	310 mm (12.20 in.)
15.0 m (49.21 ft.)	335 mm (13.19 in.)
16.5 m (54.13 ft.)	360 mm (14.17 in.)

4. Carefully slide one of drive units downwards until its link system is forced back so that the motor brake(-s) is locked.

Check by means of the mark on the mast that "maximum allowable difference in height" is maintained.

CAUTION: Immediately interrupt the function test if the platform tends to exceed the prescribed value for maximum allowable difference in height. Repeat the adjustment of arm (B) and test once again.

5. Dismantle the release levers after finishing the function test and return these to the document boxes.
6. Reinstall all covers that have been removed.

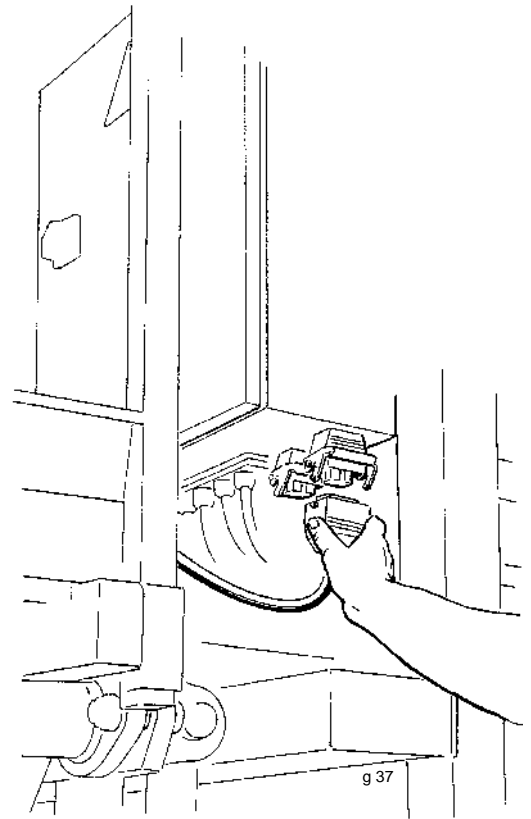
El. connection for twin mast installations

The electrical power cabinets on the drive units have two outlets, one with pins (male) and one with sockets (female). These are used for synchronizing the electrical equipment. The connecting cable has similar connections.

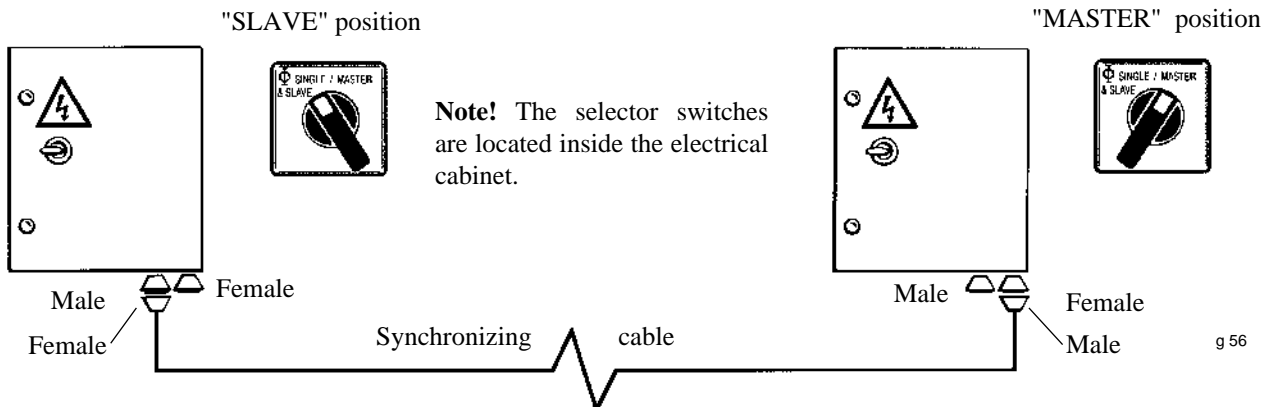
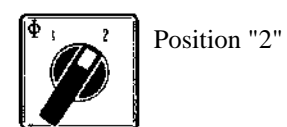
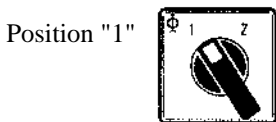
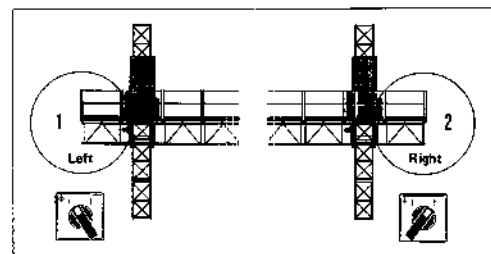
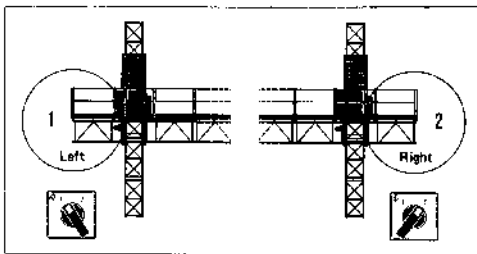
The electrical cabinet where the connecting cable male end goes, becomes the controlling cabinet. The other cabinet's control functions are automatically disconnected.

For synchronizing the levelling equipment the switch on the electrical cabinet shall be turned to the respective platform end.

The controlling cabinet's Single & Slave/Master-switch should be placed in the "Master" position. The other switch shall remain in the position "Single & Slave".



Example:

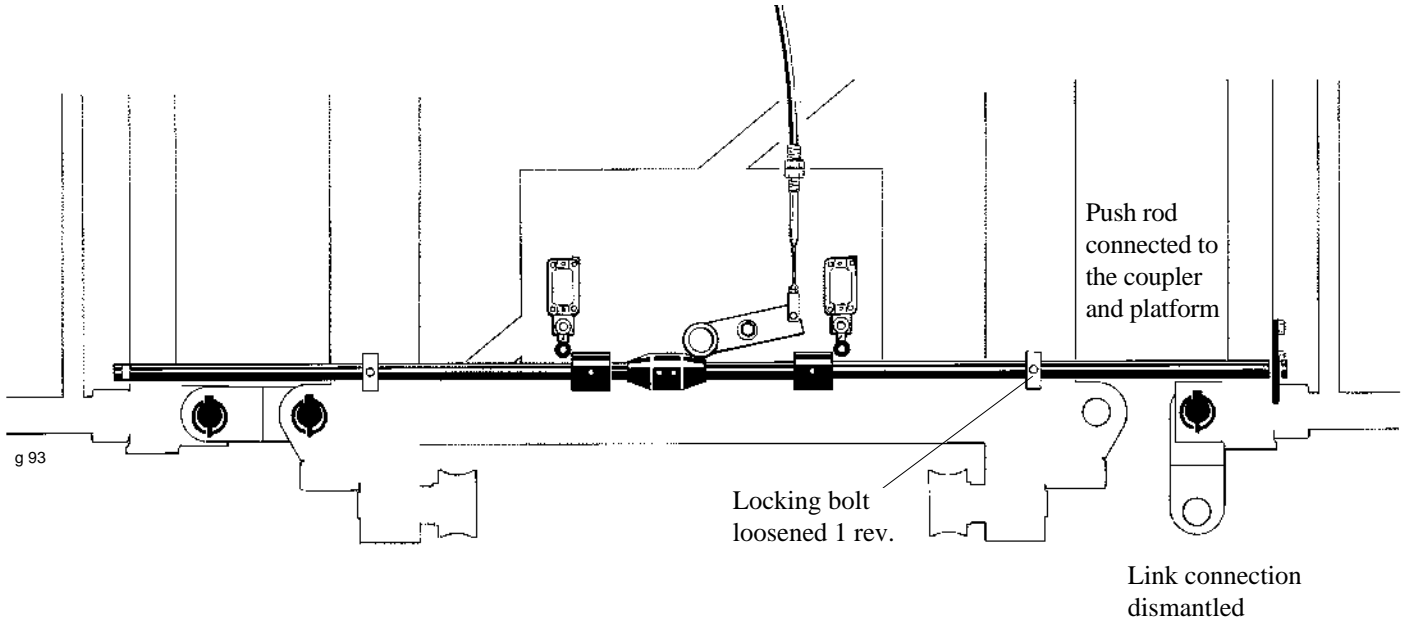


"Slave" = the disconnected controlling cabinet ("off")

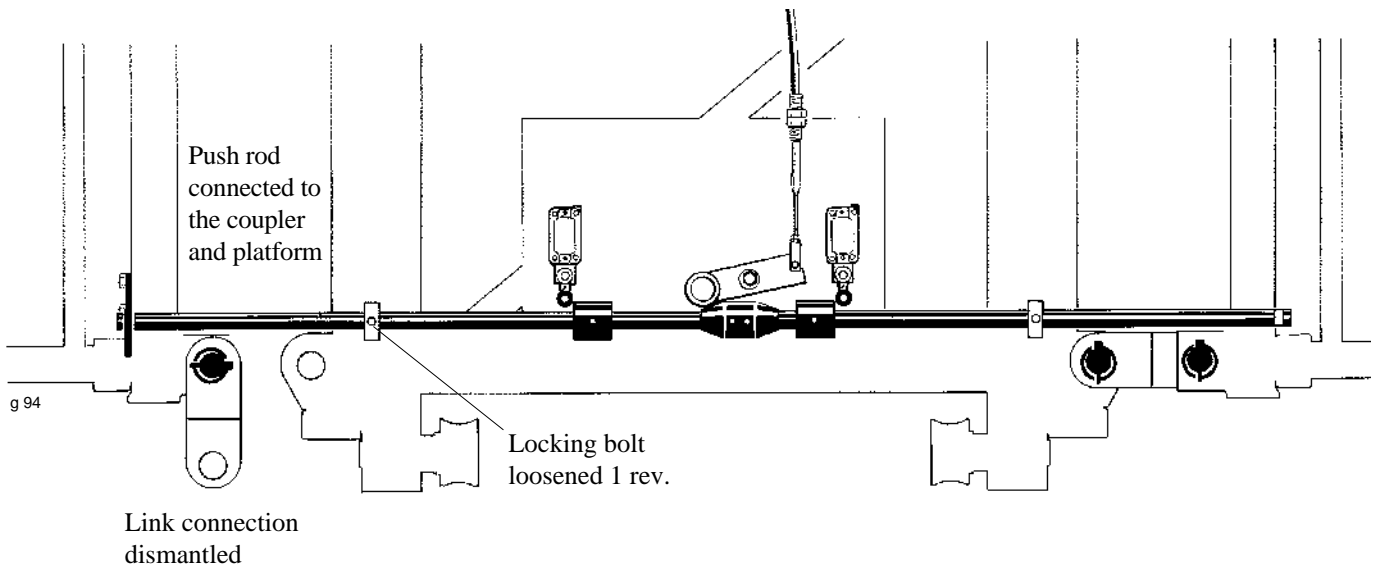
"Master" = the connected controlling cabinet ("on")

Electrical Horizontal Levelling Equipment

Left drive unit



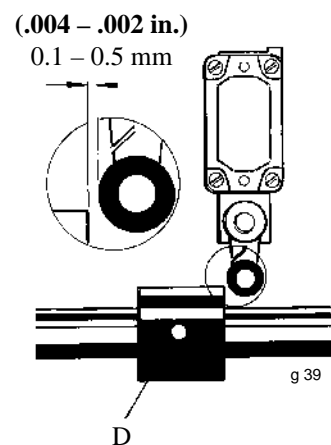
Right drive unit



CAUTION: The outermost links on the twin masted units must NOT be removed.

Adjustment

The cams (D) are adjusted to a distance of 0.1 – 0.5 mm from the switches.

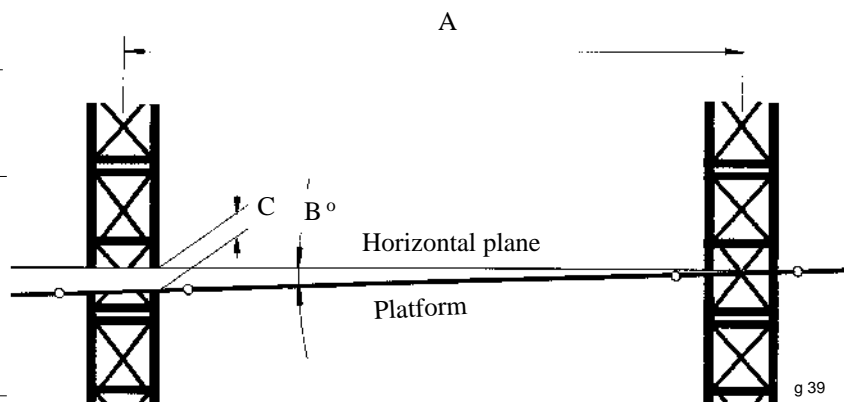


Functional test

Test run and check that the inclination of the platform does not exceed the values stated in the table below.

If the measures cannot be maintained – adjust the cams (D).

Centre distance between the masts A	The inclination of the platform in the horizontal plane B°/ Deviation in the horizontal plane C
7,5 m (24.60 ft.)	1° / 105 mm (4.13 in.)
9,0 m (29.53 ft.)	1° / 130 mm (5.12 in.)
10,5 m (34.45 ft.)	1° / 155 mm (6.10 in.)
12,0 m (39.37 ft.)	1° / 180 mm (7.08 in.)
13,5 m (44.30 ft.)	1° / 210 mm (8.27 in.)
15,0 m (49.21 ft.)	1° / 235 mm (9.25 in.)
16,5 m (54.13 ft.)	1° / 260 mm (10.24 in.)

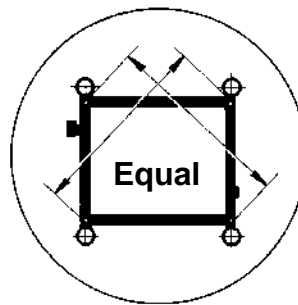
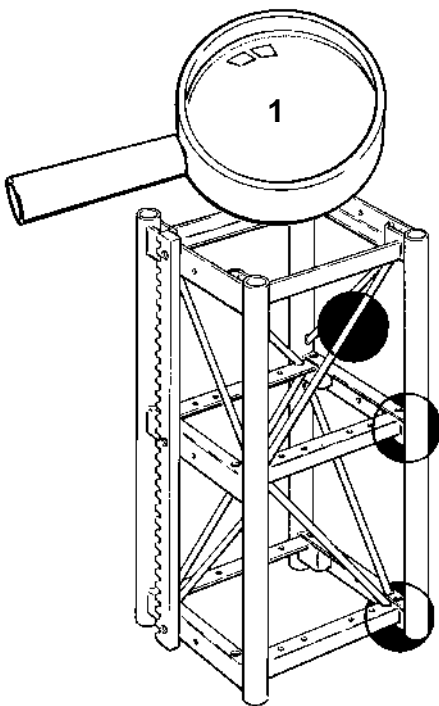


Important	H 1
Assembling platform and railings	H 2
Extension of platform	H 4
Stepdown extension	H 5
Railing cross members	H 6
Canopy/weather protection	H 7
Erection of mast	H 8
Final operation before inspection	H 11

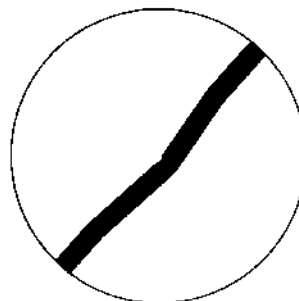
CAUTION:

Before installation of the mast, mast ties and platform sections, visually check for structural damage such as deformation, cracks and corrosion.

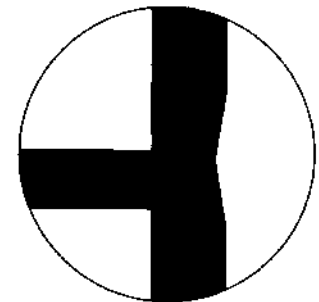
If any structural damage or severe corrosion is seen on such items as mast sections, mast ties or other load carrying members, the platform must be immediately taken out of service and the extent of the damage be determined. Corrective action must be taken before the platform is put into service again.



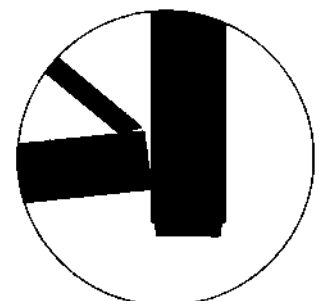
1



2



3

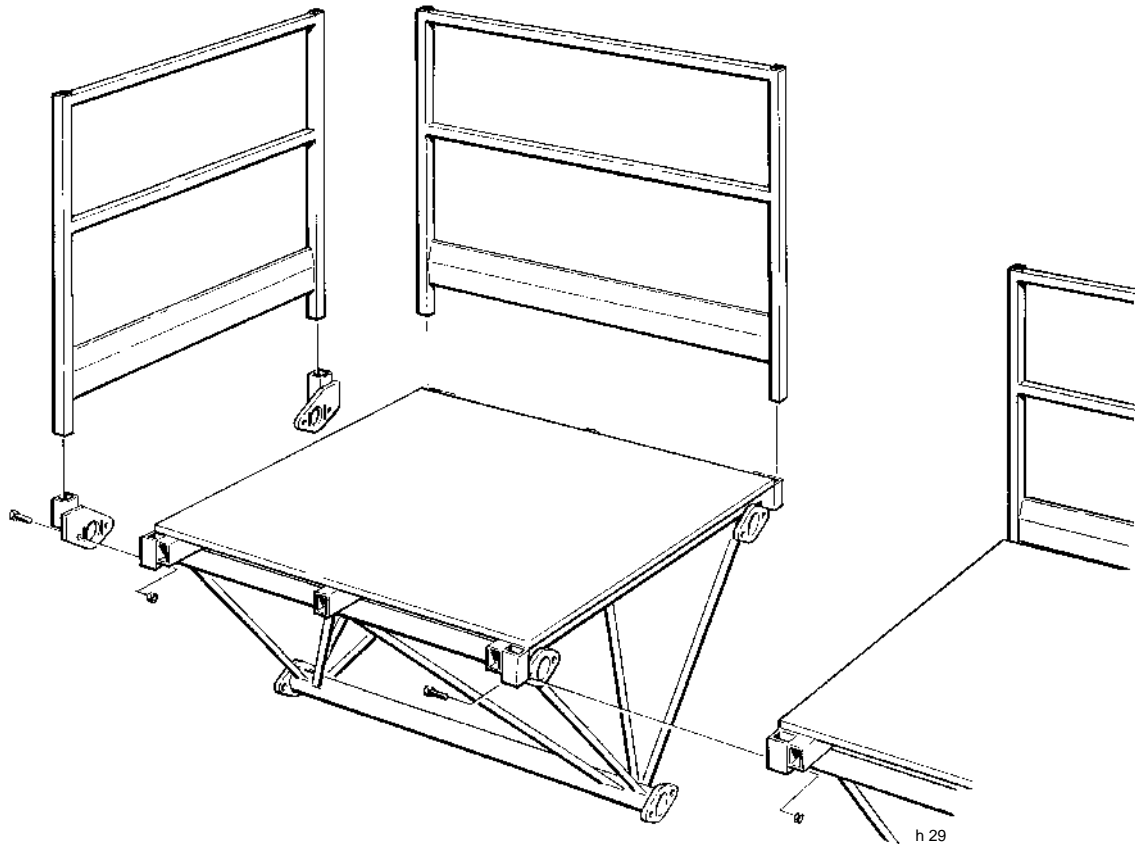


4

h 28

Assembling platform and railings

ALICLIMBER can be erected as a single or twin masted platform. By a combination of 1.5 (4ft 11 in.) and/or 0.8 m (2 ft 7.5 in.) platform length sections the platform can be adapted for most installations.



However, the following conditions must always be fulfilled:

- For single masts the platform length on each side of the mast shall be equal if possible. The difference may only be one platform section of 1.5 m (4.9 ft.).

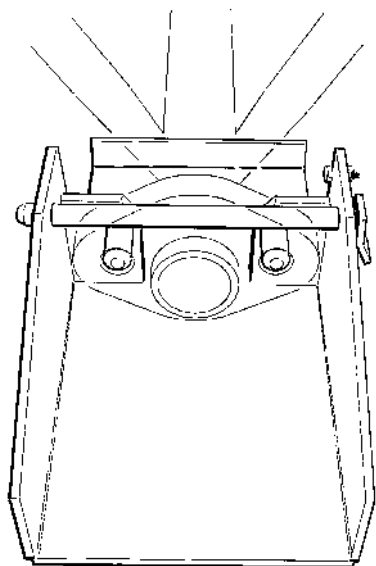
The longer end shall be dimensioned with regard to allowable maximum load.

- The shortest distance between the masts for a twin mast platform to ensure that the safety device will be operational is 7.5 m (25 ft.).
- ***For twin mast platforms: only three 1.5 m (4 ft. 11 in.) platform sections are allowed on the outside end of the mast respectively.*** The distance from the center mast to the end of the platform is then approximately 5.3 m (17 ft. 5 in.)

Use tool to facilitate assembly:

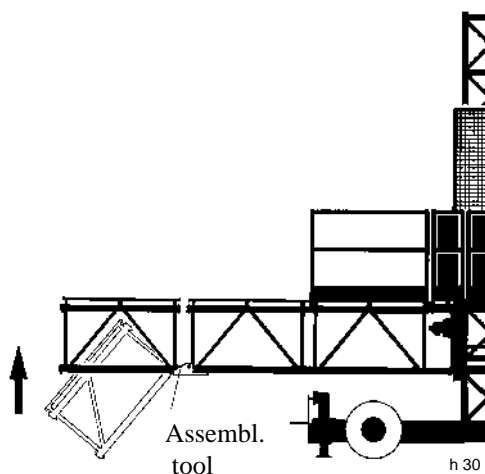
For Aliclimber 3900 = part No. 9039 908-000

For Aliclimber 6600 = part No. 9039 199-000



Assembling tool
part N. 9039 908-000

h 30



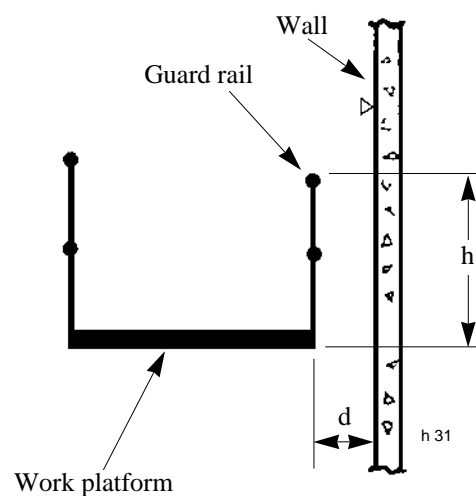
Assembl.
tool

h 30

Height of guard railing according to ANSI/SIA A92, 9 - 1993, para 3.10

On all exposed sides "h" = 42" ± 3" (1070 ± 75 mm).

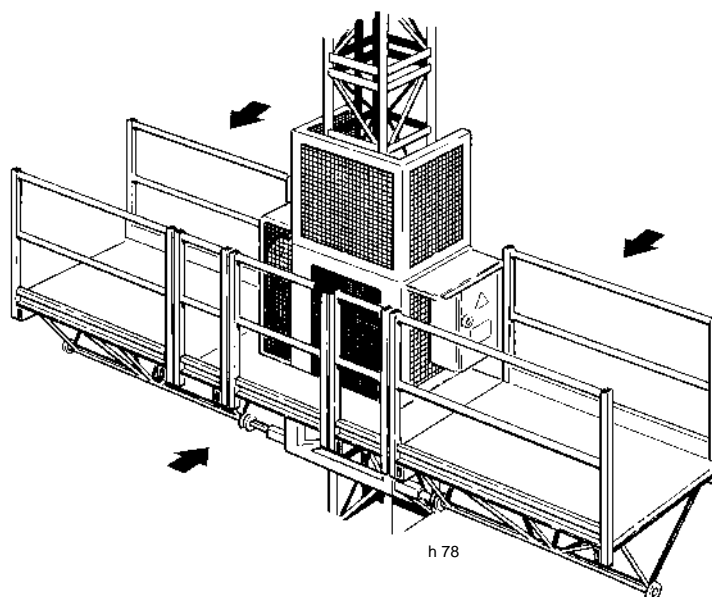
Distance "d" determines the use of guard railing according to local regulations.



Work platform

h 31

Possible location of entrance gate



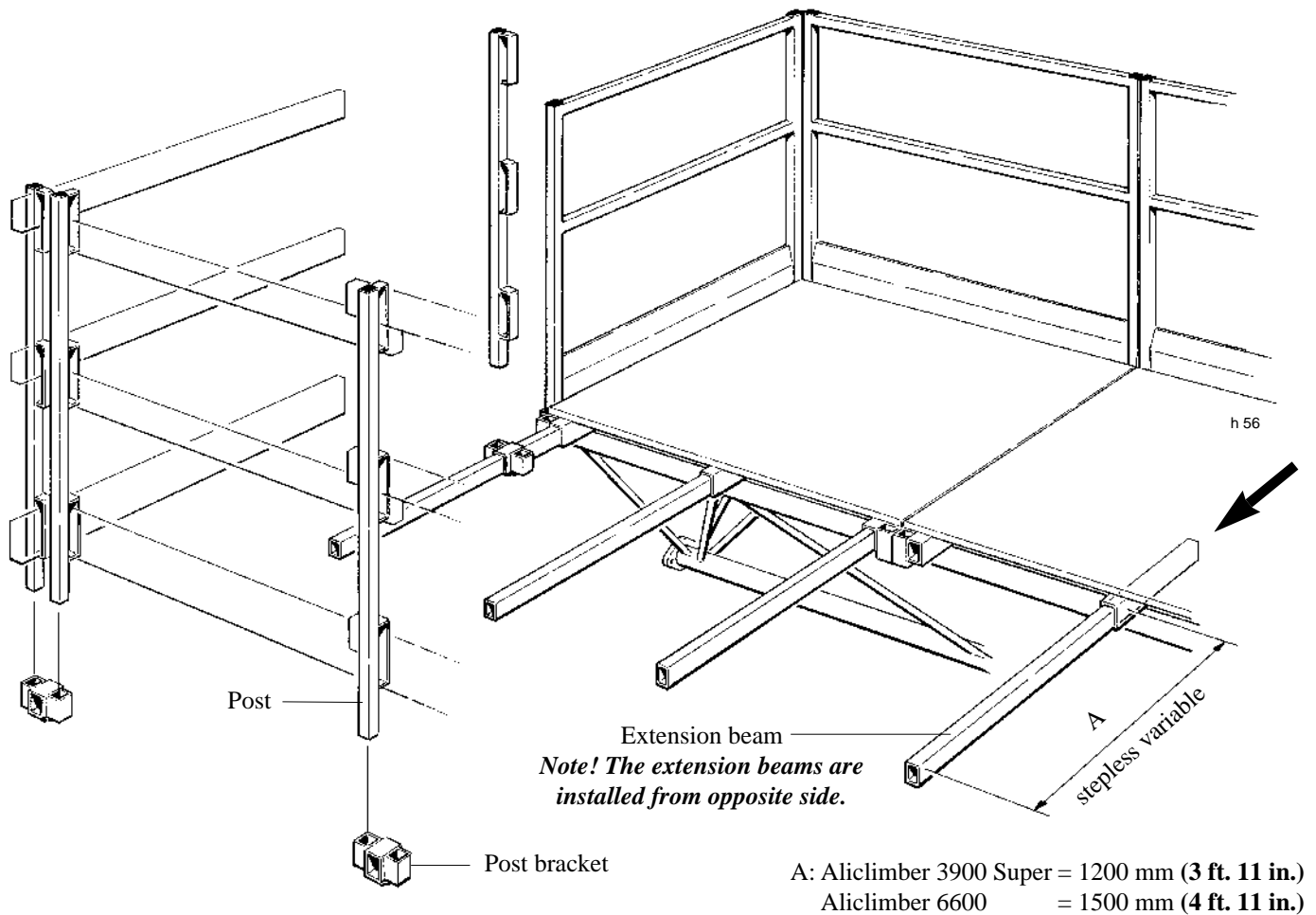
h 78

Extension of platform

Extension of the platform is made by extension beams, post brackets and posts according to the figure below.

The extension platform is built to accept planks of pine or spruce dimension 32 x 125 mm (1 1/4 x 5 in.) or wider. Alternatively water resistant plywood minimum 18 mm (3/4 in.) can be used.

When extending the platform the maximum allowable live load on the platform must be reduced by the total dead weight of the extension.



Number of extension parts/4.5 m (14.7 ft.) base unit		Number of extension parts/platform section	
Extension beam	8 pcs.	Extension beam (the outermost platform sections)	3 pcs.
Post bracket (incl. end railing)	8 pcs.	Extension beam (remaining sections)	2 pcs.
Post (incl. end railing)	12 pcs.	Post bracket	1 pcs.
		Post	1 pcs.

Extension of work platform with tied mast

The space behind the mast must NEVER be extended due to the mast ties and the collision risk.

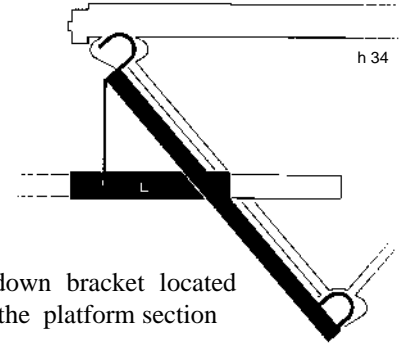
Stepdown extension – for ALICLIMBER 6600 only

Besides the extension beams and railing brackets for normal extension a special step down bracket is required.

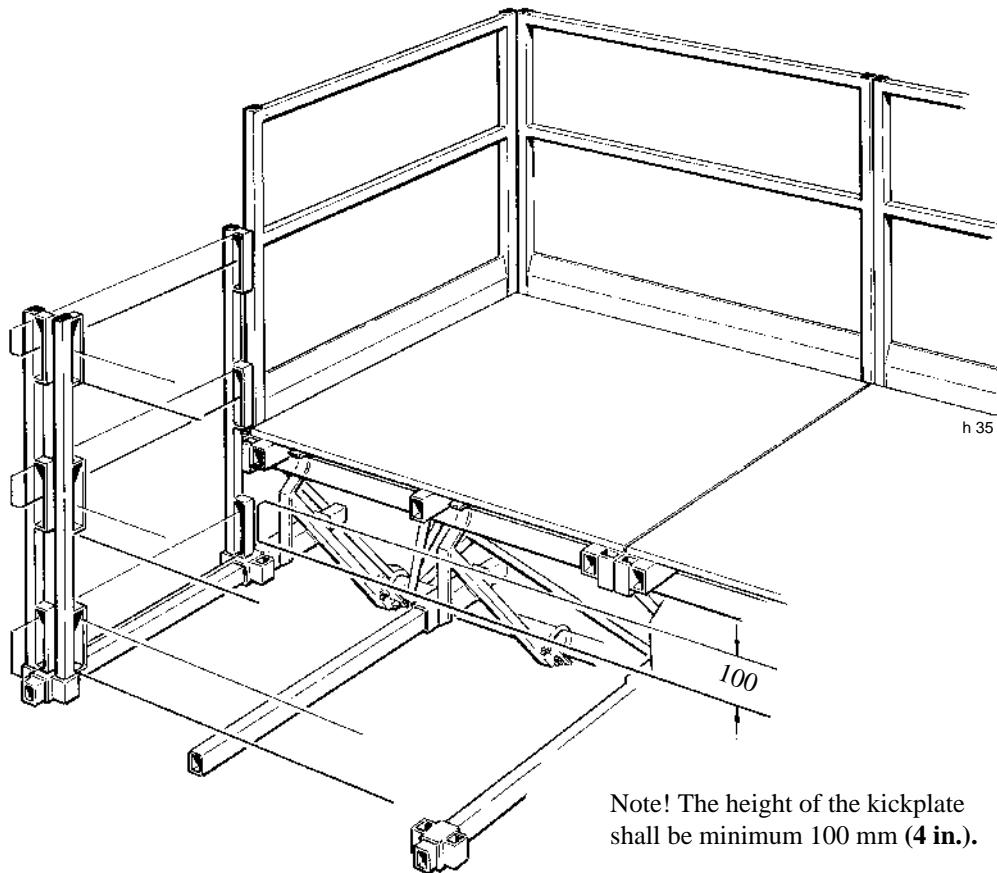
The extension platform is built to accept planks of pine or spruce dimension 32 x 125 mm (1 1/4 x 5 in.) or wider. Alternatively water resistant plywood minimum 18 mm (3/4 in.) can be used.

When extending the platform the maximum allowable live load on the platform must be reduced by the total dead weight of the extension.

The platform extensions are for personnel only.



Step down bracket located under the platform section



Note! The height of the kickplate shall be minimum 100 mm (4 in.).

Number of extension parts/platform parts

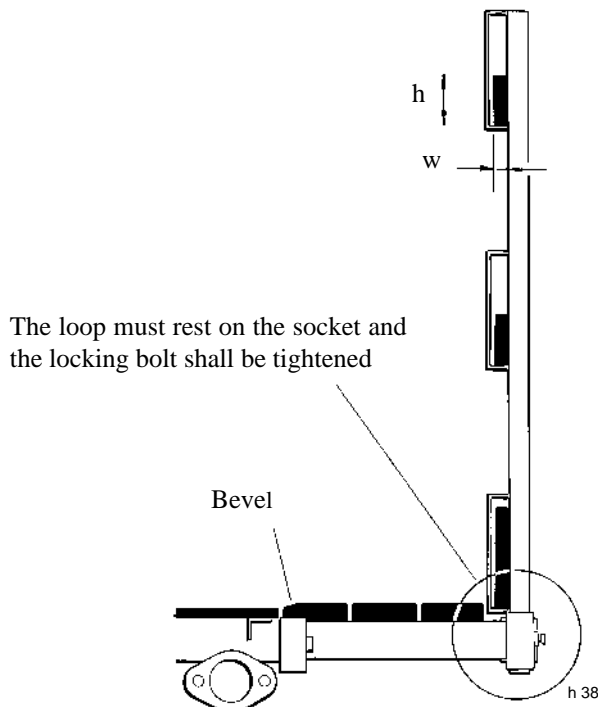
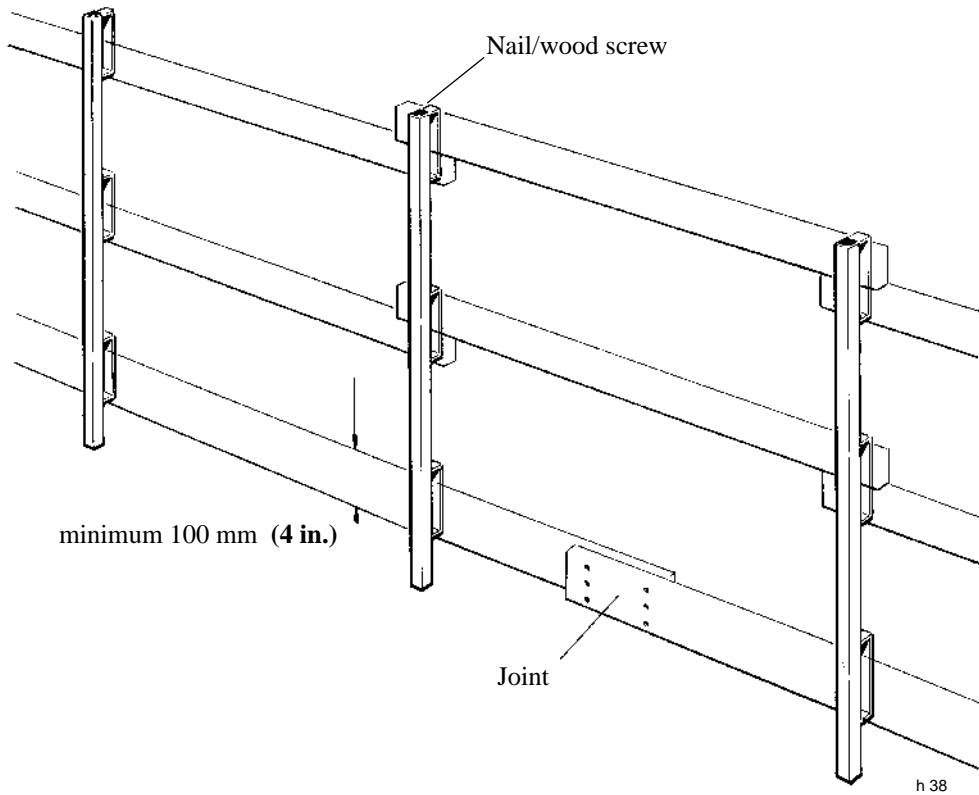
Extension beam (wing sections)	3 pcs.
Extension beam (remaining sections)	2 pcs.
Post bracket	2 pcs.+ 2 extra for the corners
Post	2 pcs.+ 4 extra for the corners
Step down bracket	3 pcs.

H6

Railing Cross Members

The railing cross members shall be of high quality (for example pine or spruce) with dimensions as per figures below for different distances between the posts. Ensure the wood is in good condition (i.e. no cracks, warps, knot holes).

Note – the height of the toeboard shall not be less than 100 mm (4 in.).



Maximum distance between the posts	Minimum dimension. w x h
1.5 m (4.9 ft.)	28 x 95 mm (1 1/4 x 4 in.) alternatively 22 x 120 mm (1 x 5 in.)

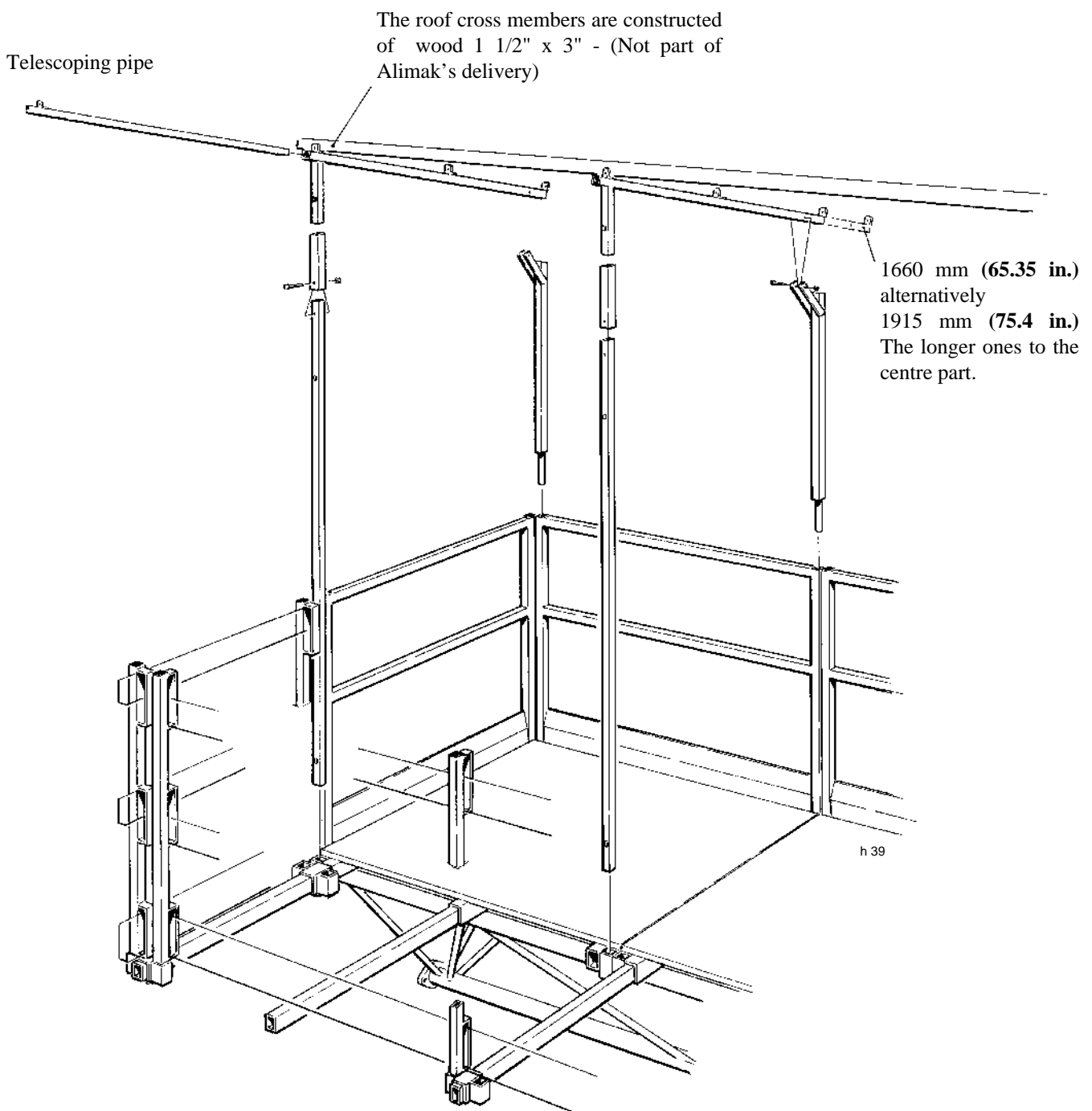
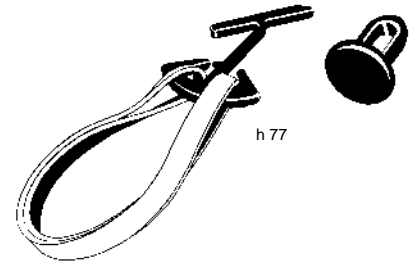
Canopy/Weather protection

The weather protection frame is assembled in accordance with the figure below and covered with reinforced plastic cloth.

The cloth is attached with rubber straps and anchors into existing reinforced grommets in four rows at a distance of 1 m along the cloth. Holes in the cloth for mast(-s) and gate are cut with a knife.

Note – If the plastic cloth is properly stretched the wind forces will be reduced.

It is forbidden to use the canopys/weather protection with free standing ALICLIMBERS.



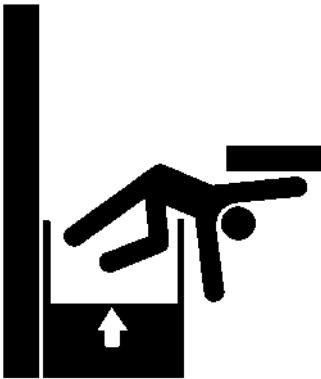
Erection of mast

To be carried out by trained service personnel.

The erection crane is mounted into one of the two sleeves on the center platform. The mast sections can then be lifted up to the platform from the ground level. Always have the mast sections close to the site of erection, and on dry firm ground. ***Note that the max. allowable load of the erection crane can only be lifted vertically.***

Do not exceed the maximum allowable load of the platform. Each mast section weights 130 kg (287 lbs.)

During mast installation cable guides and ties should be installed at prescribed elevations.



h 40



DANGER!

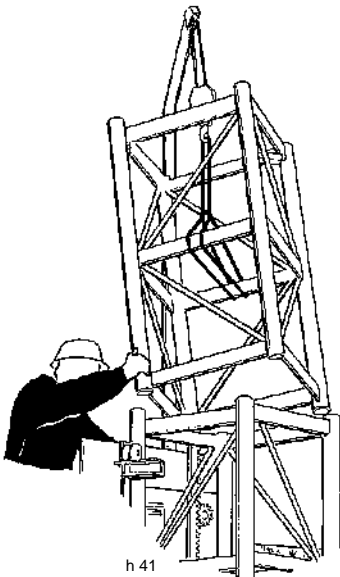
Crushing hazard.

When platform is moving, always stand inside platform railing to avoid being crushed by balconies, scaffolds or other protruding structures.

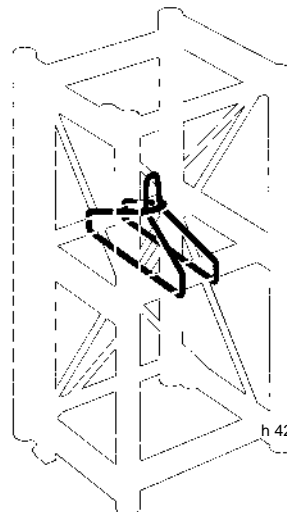
Will cause severe injury or death.

1. Lift one mast section with the erection crane and grease the guiding cones. Swing the section over the mast top, lower and install mast bolts, tighten them. Insert mast bolts with the nut located on top.

Tightening torque: 300 Nm (220 lbf x ft).



h 41



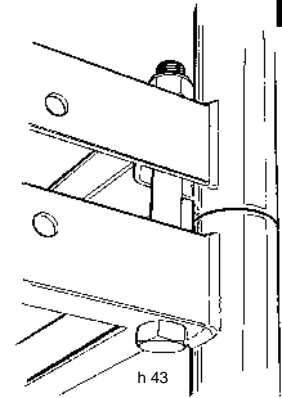
h 42

Use the lift sling as illustrated.

2. Crank the platform upwards on the mast so that the final limit switch leaves the cam. See instructions under the heading "Cranking" in this manual.

3. Check that the normal lower limit and final lower limit cams are correctly mounted and that their attachment bolts are properly tightened. Make a function test by driving downwards onto the cam.
4. Drive the platform carefully up – as close to the mast top as possible in order to install the next mast section. Connect and lift one mast section, grease and swing the section out, lower and bolt.

Note that mast sections must not hang from the erection crane during operation of the platform.



IMPORTANT: Always install mast bolts so that the nut is on top as shown.



DANGER !

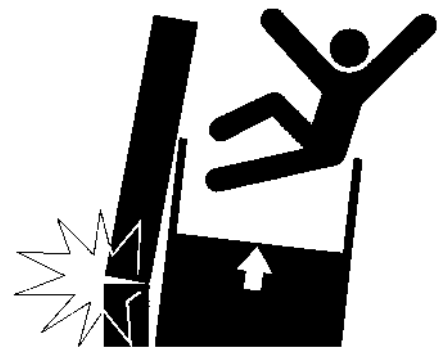
Missing bolt hazard.

Tighten all mast bolts on previously installed mast sections before disconnecting mast section from erection crane.

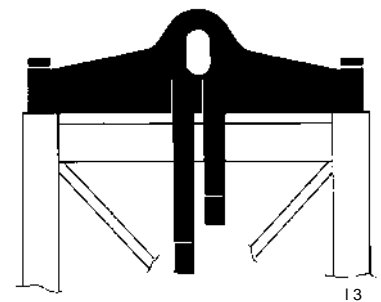
Will cause death or personal injury.

5. Erect the remaining mast sections until required mast height is achieved. Tie as prescribed.

CAUTION: Safety device test with erection load on the platform must be performed as soon as a mast height of 5 m (17 ft.) is reached. See instructions for safety test execution in chapter "Safety device test" in this manual.



6. Install the lifting yoke with limit cams and cover on the top mast section.
7. Make a function test of the normal limit switch by driving onto the limit cam located on the top mast section.
8. Retighten all mast bolts on the way down. Tightening torque 300 Nm (220 lbf x ft).
9. Install the mast protection screens on the drive unit, and if applicable the rear mast protection for the platform in the "extended" design.

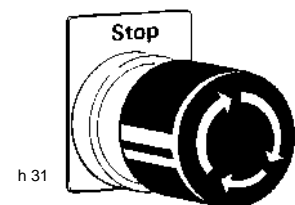


WARNING!

Unintentional moving.

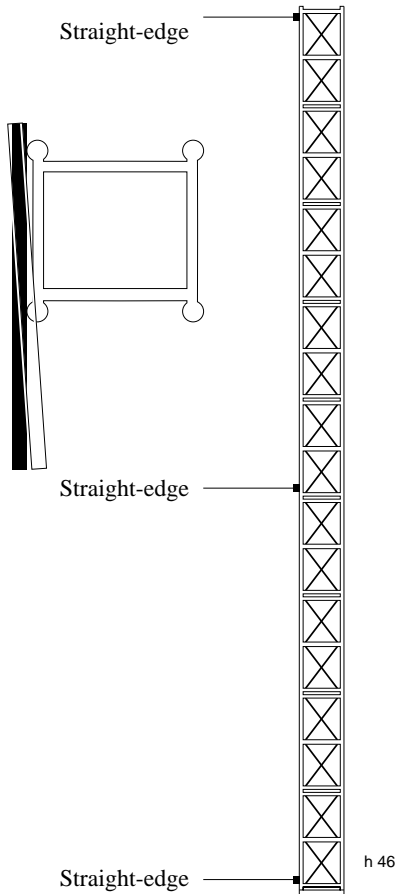
Always depress the red "Emergency Stop"-button to prevent unintentional moving while work is carried out on the mast.

Can cause severe personal injury or death.



Turn the button to reset the switch.

H 10



Perpendicularity of the mast

Check possible out-of plumbness of the mast with a plumb line, spirit level or a theodolite, when installing the first tie. If a correction required, adjust it by means of the mast tie.

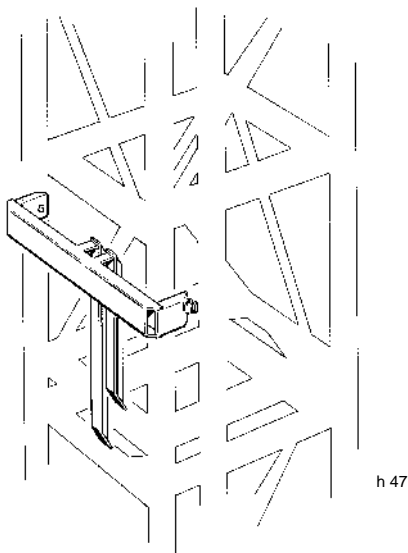
When installing additional ties check verticality with a long straight-edge rule, using the ground level plan and first tie as references. Use a theodolite if desired, but never use a spirit level above the first tie.

The use of a straight-edge will also indicate if the mast is twisted.

Try to use the same or as few references as possible for the entire mast installation.

Straight-edge rules may be fabricated on site. As an example, they can be a 2" x 4" x 1.5 m (5 ft) long piece of timber and be attached to the mast with tie wire. The straight-edge must be properly attached.

CAUTION: Remove straight-edges after the mast has been installed.



Movable limit cam

If required it is possible to limit the upward travel in the mast by using an optional movable limit cam, part No. 9040 677-000.

Final operations before inspection

1. Remove the erection crane and all erection equipment from the platform.
2. Execute service according to "Service and Maintenance Schedule" with the exception of items 2, 27, 28, 41, 50, 51, 53 and 54 according to chapter "Service and Maintenance".
3. Instruct the operator/-s regarding safety, safety regulations, operating instructions, service and maintenance.

THE PLATFORM IS NOW READY FOR INSPECTION!

CAUTION! Change the oil in the worm gears after 24 hours or one week's operation.

Mast ties	K 1
Tie forces	K 2
Tie distances	K 4
Installation of mast tie	K 6

Mast ties

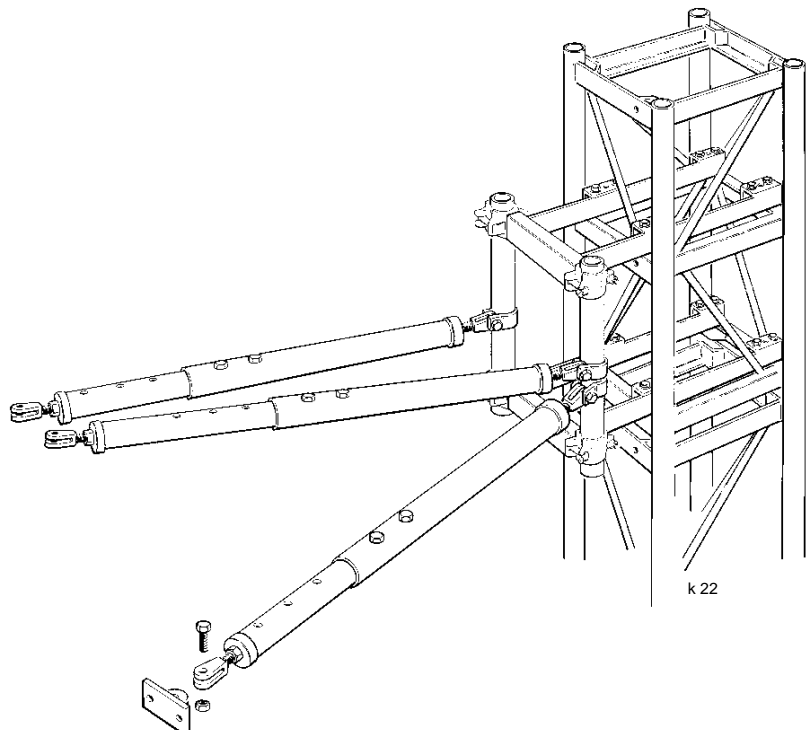
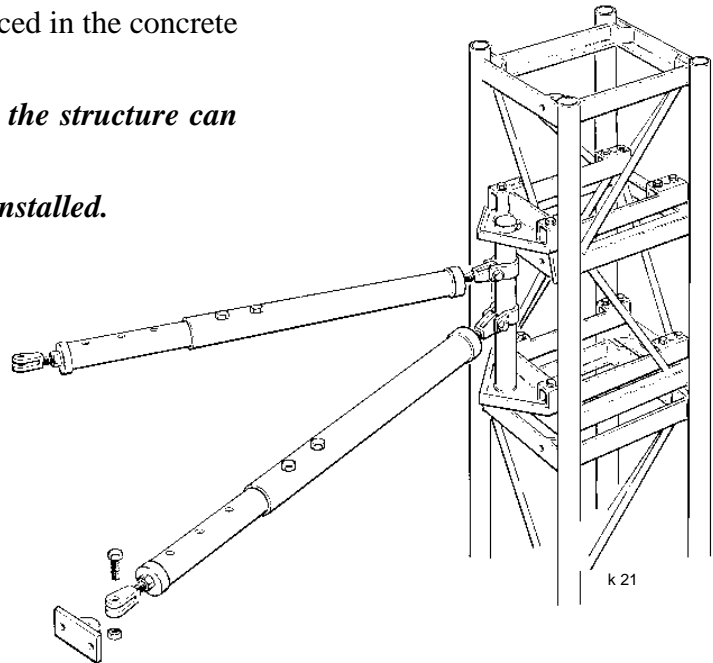
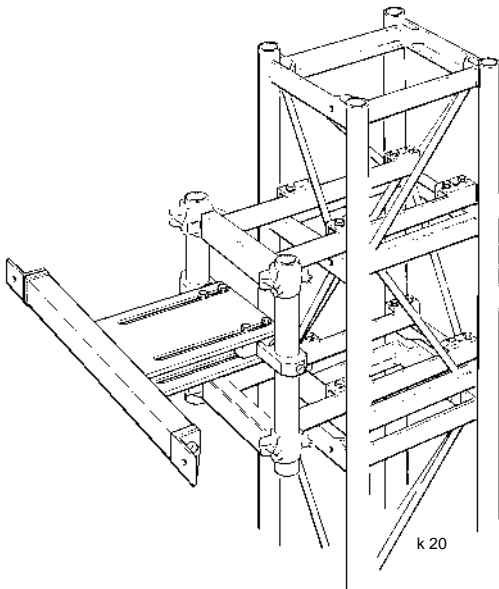
Tying of the mast is dependent upon the desired mast height. If the platform is equipped with mobile chassis, pedestal base or protective canopy the mast must be tied in accordance with instructions listed above. For each installation and set-up, the type of tie must be chosen to suit the particular installation.

When using mast ties the mast must ALWAYS be facing the structure face.

Where ties are to be attached to cast in place inserts, this must take place early enough to ensure the concrete is cured and at its required strength. Inserts must be suitably placed in the concrete with proper reinforcing steel.

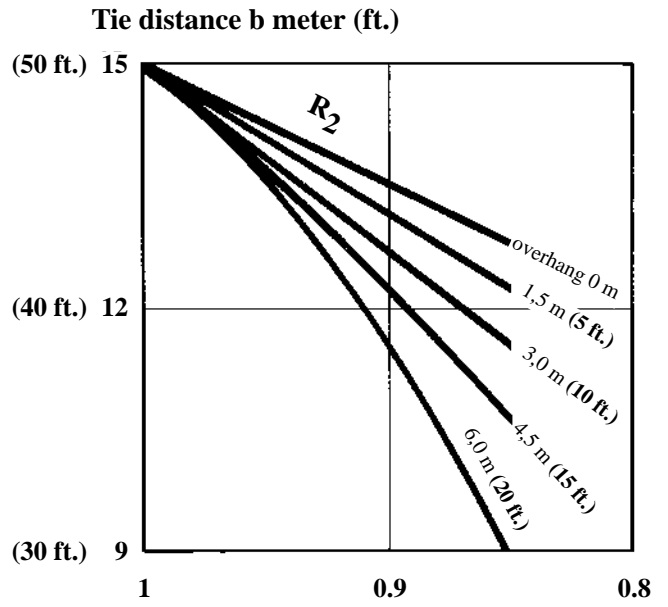
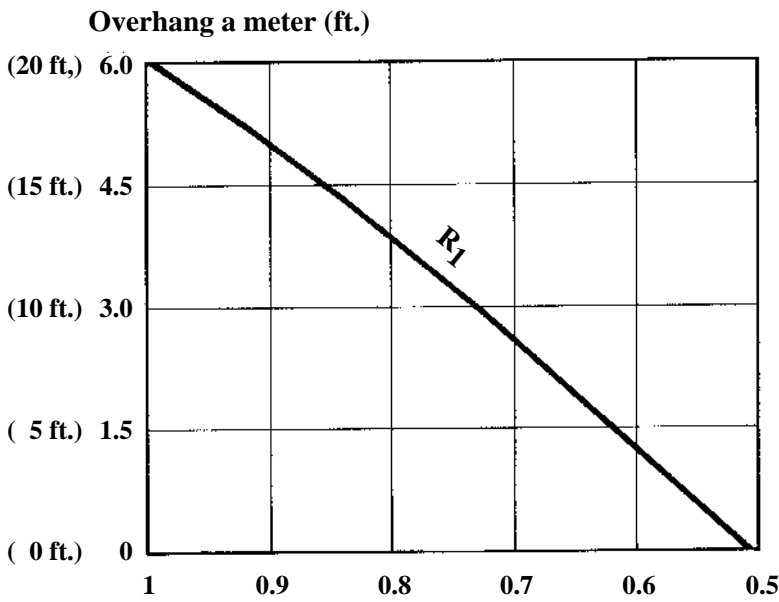
Owner/user is responsible for ensuring that the structure can safely withstand tie forces.

Only Alimak genuine pipe clamps are to be installed.



K₂

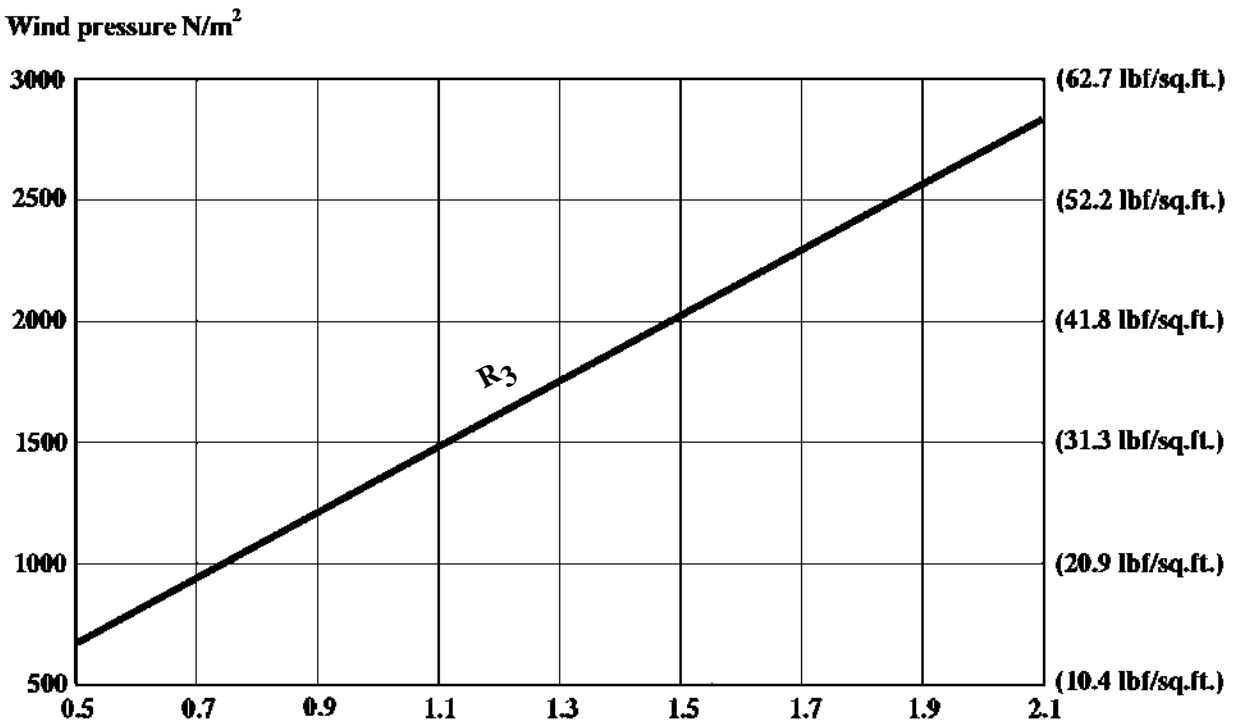
Tie forces Reduction factors R1, R2, R3



k 23

If the force on the tie support should prove to be excessive – contact the nearest ALIMAK representative and ask for his advice.

Calculation of wind pressure according to ANSI / ASCE 7-95 or later revision.



k 42

Mast tie type 31

This tie is primarily used for twin masted installations. The tie is telescopic variable in the vertical direction. The tie width varies depending upon the chosen length of the tie, which is variable within 690 mm (**27.2 in.**). The distance between the face of the structure and the platform for this tie type is a minimum of 1130 mm to a maximum of 1820 mm (**min. 44.6 in. – max.71.6 in.**).

L mm	B min. mm	Mast tie Part number	Embedment set Part number
1165 (45.8 in.)	625 (24.6 in.)	9050 264-100	9002 931-000
1300 (51.2 in.)	696 (27.4 in.)	–"–	–"–
1400 (55.1 in.)	750 (29.5 in.)	–"–	–"–
1500 (59.0 in.)	804 (31.6 in.)	–"–	–"–
1600 (59.0 in.)	858 (33.8 in.)	–"–	–"–
1700 (66.9 in.)	911 (35.8 in.)	–"–	–"–
1855 (73.0 in.)	995 (39.2 in.)	–"–	–"–

Max wall force P. is calculated according to the following formula:

$$P = \frac{L}{B} \times 10600 \times R_1 \times R_2 \times R_3 \text{ [Newton (x 0.225 = lbf.)]}$$

$$\text{Max force in bolt } P_S = 0.66 \times P$$

Force F, parallel with the face of the structure.

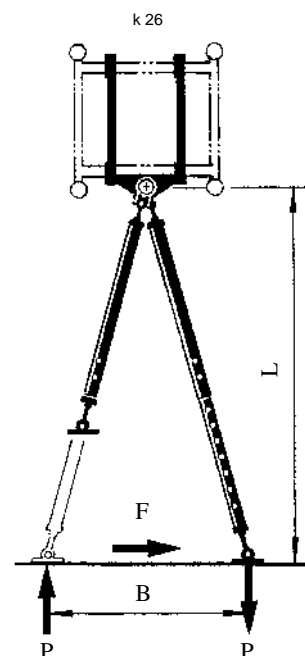
$$F = 10600 \times R_1 \times R_2 \times R_3 \text{ [Newton (x 0.225 = lbf.)]}$$

R₁, R₂ and R₃ are reduction factors as a result of overhang, tie distance, and wind force. Refer to diagrams R₁, R₂ and R₃.

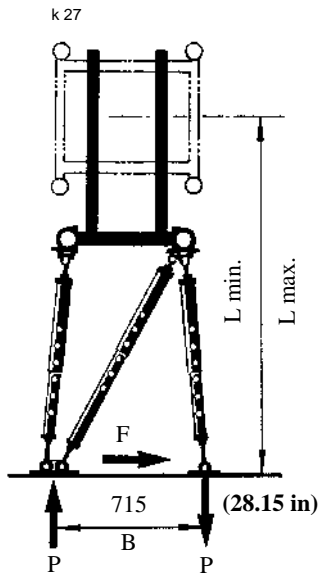
R₁ x R₂ x R₃ can never be less than the following:

ALICLIMBER 3900 Super = 0.3

ALICLIMBER 6600 = 0.4



As this tie cannot take up the torsional force from the mast it shouldn't be used for single mast platforms at heights above 30 m (100 ft.).



Mast tie type 32

This tie is used for single or twin masted installations, and designed to take torsional forces of the mast.

Type 32 Short: The tie is telescopic variable in the vertical direction. The width of the tie is fixed, dependent on the length of the tie, which is adjustable 400 mm (15.75 in.).

The distance between the face of the structure and the platform for this tie type is a minimum of 950 mm to a maximum of 1350 mm (min. 37.4 in. – max. 53.15 in.).

Type 32 Long: The tie is telescopic variable in the vertical direction. The width of the tie is fixed, dependent on the length of the tie, which is adjustable 360 mm (14.2 in.).

The distance between the face of the structure and the platform for this tie type is a minimum of 1330 mm to a maximum of 1690 mm (min. 52.7 in. – max. 66.5 in.).

Max force P is calculated according to the following formula:

$$P = \frac{L}{B} \times 13500 \times R_1 \times R_2 \times R_3 \text{ [Newton (x 0.225 = lbf.)]}$$

$$\text{Max force in bolt } P_S = 0.67 \times P$$

Force F, parallel with the face of the structure.

$$F = 13500 \times R_1 \times R_2 \times R_3 \text{ [Newton (x 0.225 = lbf.)]}$$

R_1 , R_2 and R_3 are reduction factors as a result of overhang, tie distance, and wind force. Refer to diagrams R_1 , R_2 and R_3 .

$R_1 \times R_2 \times R_3$ must never be greater than 1.0 nor less than the following for tie type 32:

$$\text{ALICLIMBER 3900 Super} = 0.47$$

$$\text{ALICLIMBER 6600} = 0.53$$

Mast tie alternative	L min. mm	L max. mm
32 Short	1310 (51.6 in.)	1710 (67.3 in.)
32 Long	1690 (66.5 in.)	2050 (80.7 in.)

Mast tie type 23

This tie is used for single or twin masted installations, and designed to take torsional forces of the mast. The tie is telescopic variable in the vertical direction. The width of the tie is fixed, dependent on the length of the tie, which is variable in increments of 182 mm (7.17 in.)

The distance between the face of the structure and the platform for this tie type is a minimum of 360 mm to a maximum of 543 mm (min. 14.2 in. – max. 21.8 in.).

Note: Tie types 32 and 23 are attached to the mast in a similar manner.

Max wall force P. is calculated according to the following formula:

$$P = \frac{L}{B} \times 10600 \times R_1 \times R_2 \times R_3 \text{ [Newton (x 0.225 = lbf.)]}$$

Max force in bolt $P_S = 0.66 \times P$

Force F, parallel with the face of the structure.

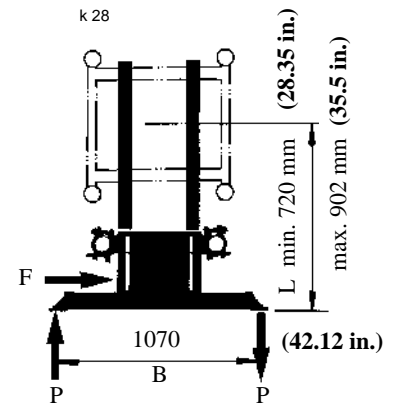
$$F = 10600 \times R_1 \times R_2 \times R_3 \text{ [Newton (x 0.225 = lbf.)]}$$

R_1 , R_2 and R_3 are reduction factors as a result of overhang, tie distance, and wind force. Refer to diagrams R_1 , R_2 and R_3 .

$R_1 \times R_2 \times R_3$ must never be more than 1.0 nor less than the following for tie type 23:

ALICLIMBER 3900 Super = 0.41

ALICLIMBER 6600 = 0.63



Tie distances – Mobile chassis

1st tie installed at 15 m (50 ft.) height.

Subsequent ties at max. 15 m (50 ft.) intervals.

Max. overhang 6 m (20 ft.).

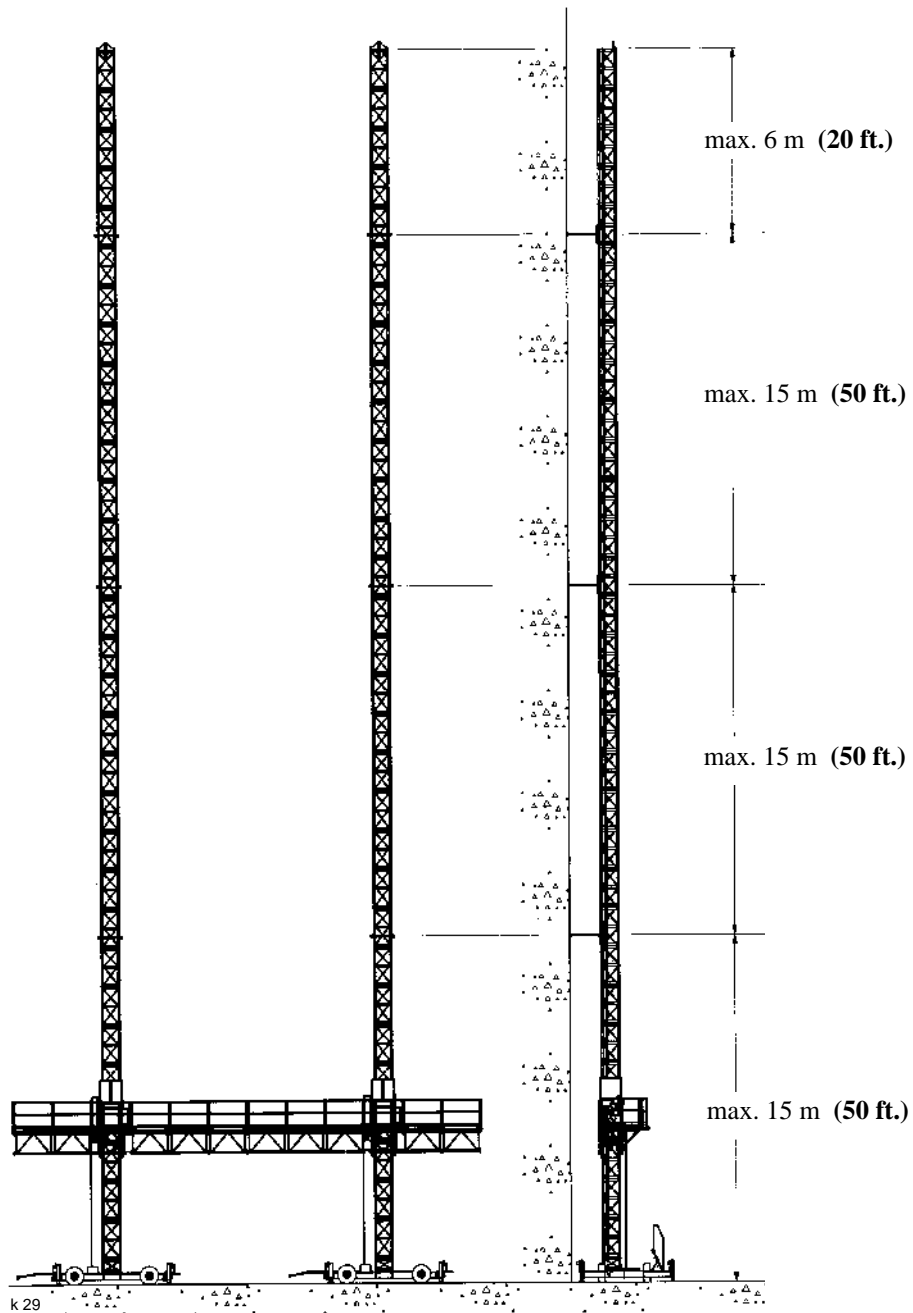
See sketch below.

If the protective canopy is used:

1st tie installed at 9 m (30 ft.) height.

Subsequent ties at max. 9 m (30 ft.) intervals.

Max. overhang 6 m (20 ft.).



k 29

Tie distances – Pedestal base

1st tie installed at 3 m (10 ft.) height.

2nd and 3rd at 6 m (20 ft.) and 9 m (30 ft.) intervals respectively.

Subsequent ties at 15 m (50 ft.) intervals.

Max. overhang 6 m (20 ft.). *See sketch below.*

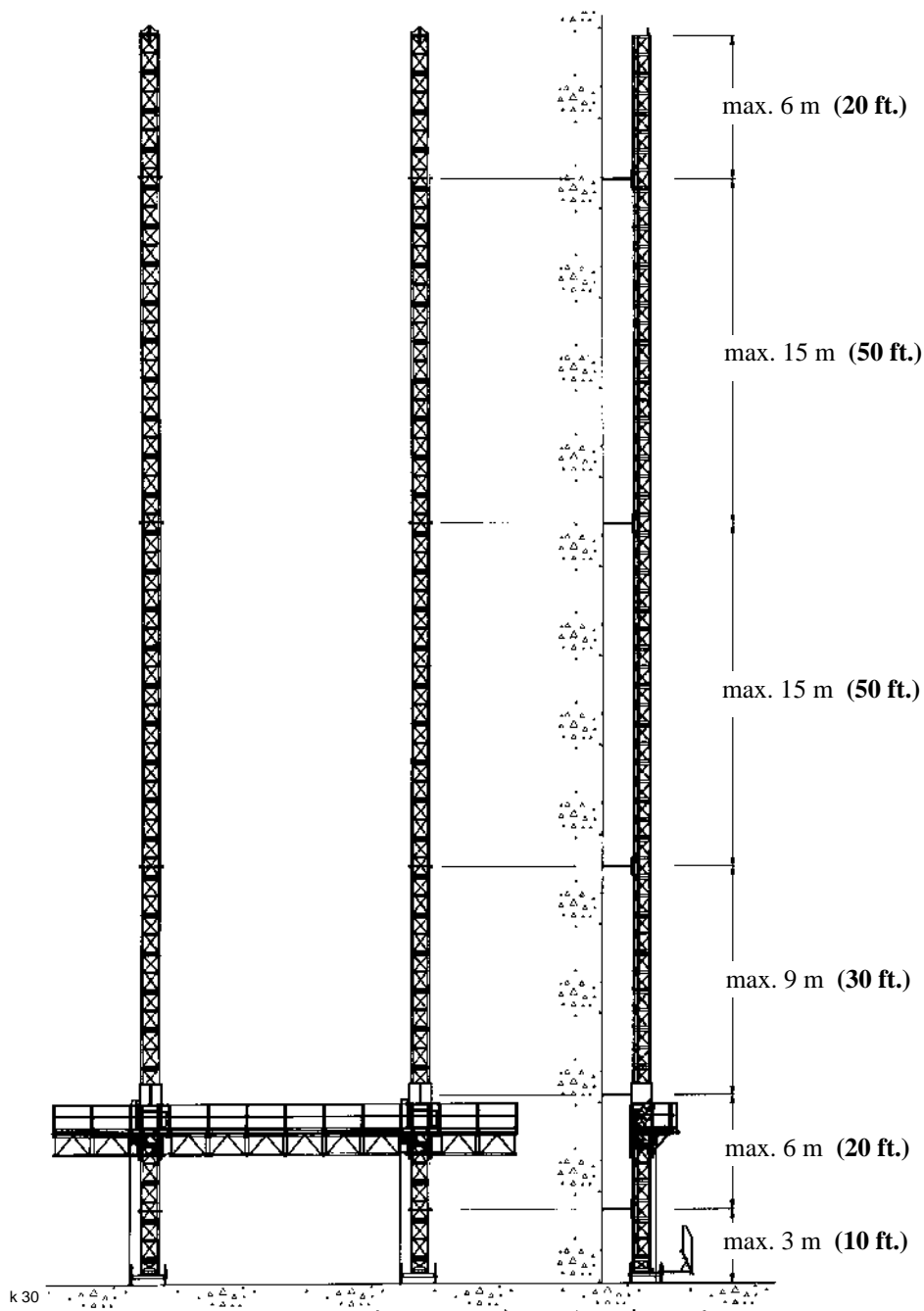
If the protective canopy is used:

1st tie installed at 3 m (10 ft.) height.

2nd tie installed at 6 m (20 ft.) interval.

Subsequent ties at max. 9 m (30 ft.) intervals.

Max. overhang 6 m (20 ft.).



Installation and removal of mast tie

First ensure that the structure to be tied into can withstand the maximum reaction forces that can occur in the ties. This is the responsibility of the Owner/User.

Weather conditions

When installing and dismantling the ties the overhang must not be greater than the tie distance plus an additional 1.5 m (5 ft.). This only when the wind is not greater than 8 m/sec. (18 mph) and any load on the platform is evenly distributed on each side of the mast.

**CAUTION: Install scaffold or similar equipment if tie cannot be installed from the platform or the structure due to excessive length.
Local safety regulations must apply.**

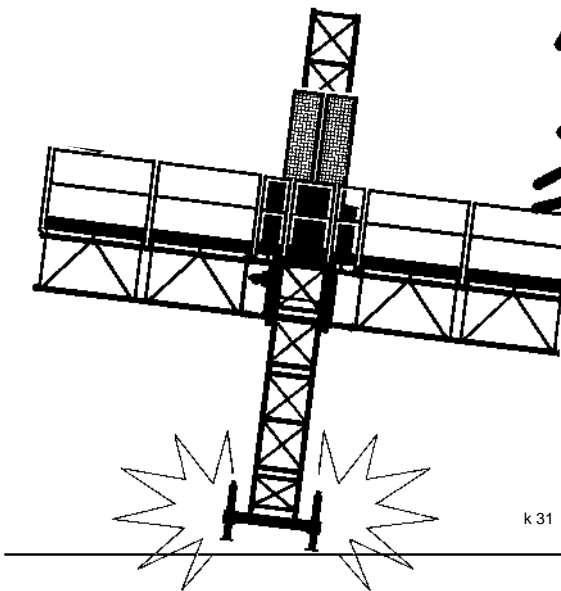


CAUTION !

Tipping hazard with base pedestal.

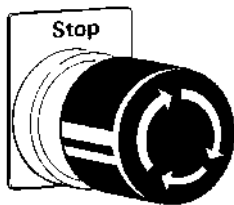
Always dismantle the platform to a maximum transport length of 4.5 m (15 ft.) before disconnecting the lowest (1st) mast tie.

Will cause severe injury or death.



k 31

k 32



Turn the button to reset the switch.



WARNING!

Unintentional moving.

Always depress the red "Emergency Stop"-button to prevent unintentional moving while work is carried out on the mast.

Can cause severe personal injury or death.

Installation of mast tie

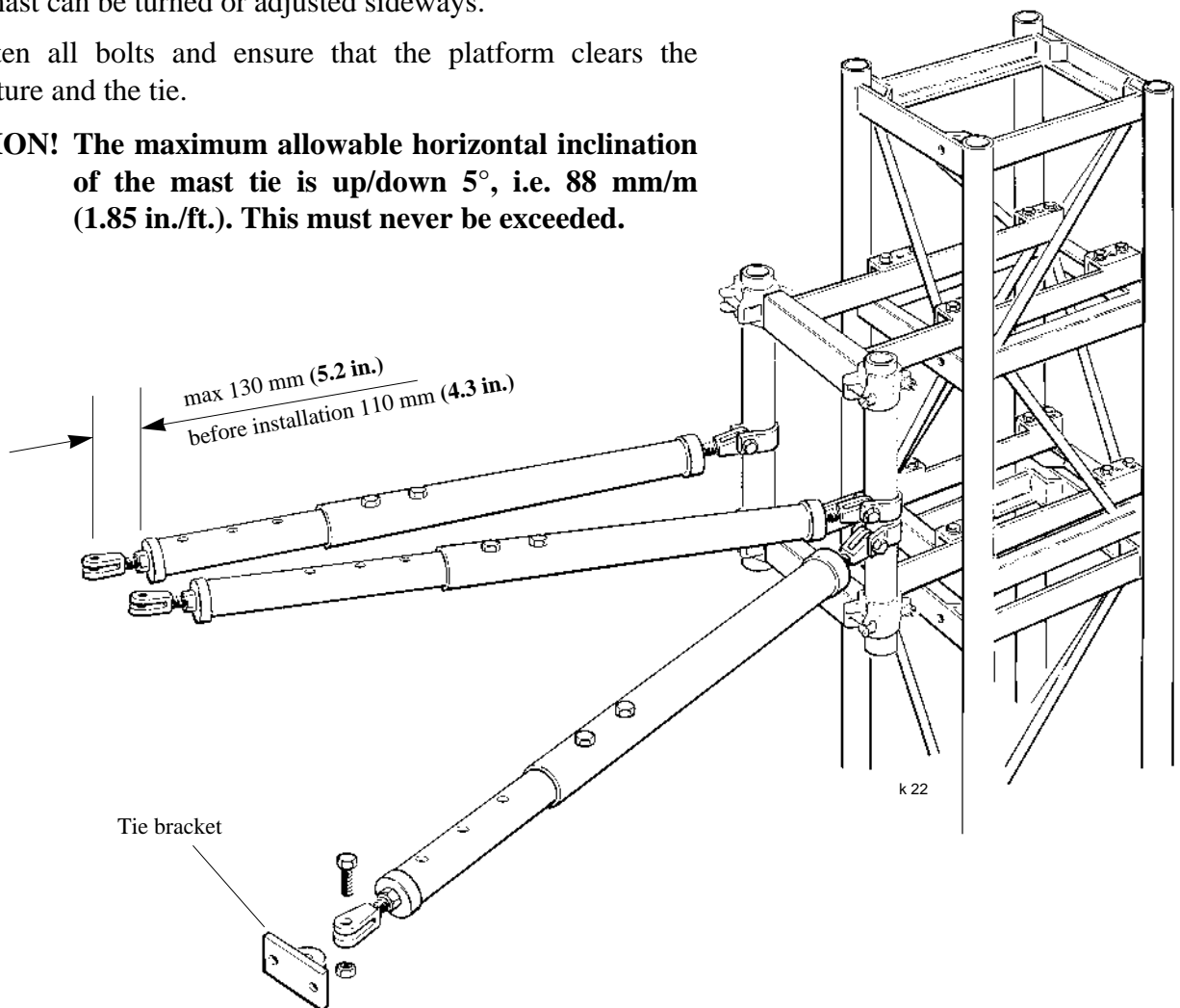
1. Install the brackets in the mast. Make sure that the brackets are placed symmetrically.
2. Attach the tie brackets.
3. Adjust the length of the tie pipes and install them with the erection crane or other lifting device.

The pipe adjusting link screws must be screwed out to a length of approximately 110 mm (4.3 in.) before installation (See illustration).

Maximum length of adjusting link screws 130 mm (5.2 in.).

4. Straighten the mast. By adjusting the length of the tie pipes the mast can be turned or adjusted sideways.
5. Tighten all bolts and ensure that the platform clears the structure and the tie.

CAUTION! The maximum allowable horizontal inclination of the mast tie is up/down 5°, i.e. 88 mm/m (1.85 in./ft.). This must never be exceeded.



Adjust the length of the tie pipes as close to the tie length as possible, moving the two pipes so that the holes coincide. Lock the pipes with bolts and lock nuts.

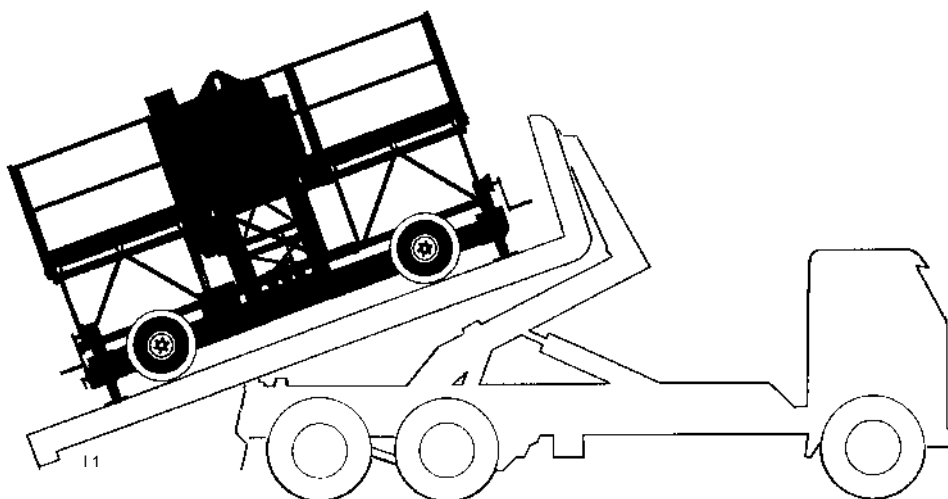
Adjust the length ± 40 mm (1.6 in.) by turning the link screws in or out. (Adjust equally on both sides). By adjusting the tie pipes, the length can be adjusted further – even after the tie pipe has been anchored into mast and wall (without having to remove the ends). Note that the link screws are mechanically "secured" and cannot be screwed off.

Transportation on public roads	L 1
Towing of platform without mast	L 1
Towing with erected mast	L 2
Lifting with crane	L 2
Movement with self-powered machinery ...	L 3

Transport and movement

The machine can be towed or moved by its own drive unit (option) over short distances. For longer distances it is recommended that special transport vehicles be used. Only machine components, e.g. platform parts and mast sections can be left on the platform. The mast must always be dismantled during transportation on public roads.

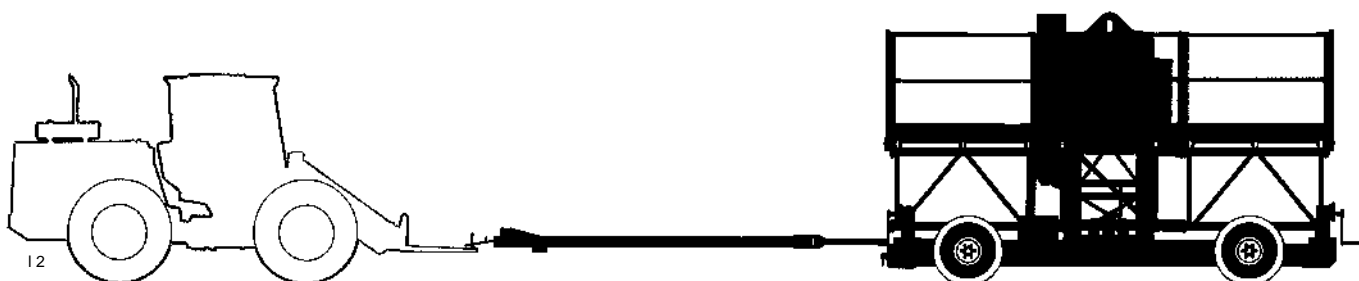
Remember to always disconnect and remove the power cable before transportation.



Towing of platform without mast

The outriggers must be retracted completely and locked. The platform must also be lowered so that it rests on the rubber buffers.

Maximum allowable speed when towing is 20 km/h (12 mph).



When parked – always use the wheel chocks to avoid unintentional movements.

When towing – be sure of that the machine is properly connected to the towing vehicle before the stop lugs are removed.

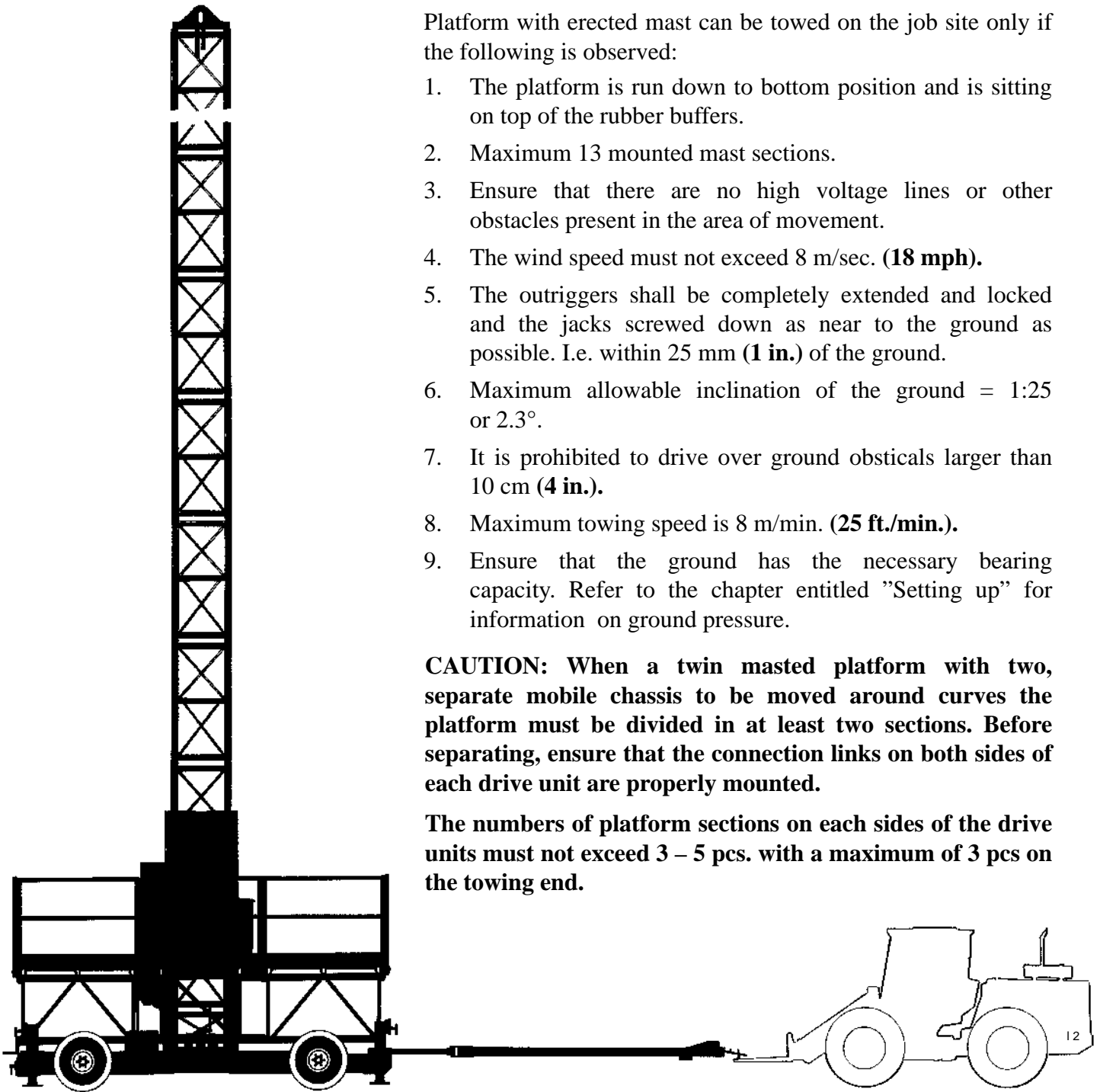
Towing of platform with erected mast on a mobile single or twin mast chassis

Platform with erected mast can be towed on the job site only if the following is observed:

1. The platform is run down to bottom position and is sitting on top of the rubber buffers.
2. Maximum 13 mounted mast sections.
3. Ensure that there are no high voltage lines or other obstacles present in the area of movement.
4. The wind speed must not exceed 8 m/sec. **(18 mph)**.
5. The outriggers shall be completely extended and locked and the jacks screwed down as near to the ground as possible. I.e. within 25 mm **(1 in.)** of the ground.
6. Maximum allowable inclination of the ground = 1:25 or 2.3°.
7. It is prohibited to drive over ground obstacles larger than 10 cm **(4 in.)**.
8. Maximum towing speed is 8 m/min. **(25 ft./min.)**.
9. Ensure that the ground has the necessary bearing capacity. Refer to the chapter entitled "Setting up" for information on ground pressure.

CAUTION: When a twin masted platform with two, separate mobile chassis to be moved around curves the platform must be divided in at least two sections. Before separating, ensure that the connection links on both sides of each drive unit are properly mounted.

The numbers of platform sections on each sides of the drive units must not exceed 3 – 5 pcs. with a maximum of 3 pcs on the towing end.

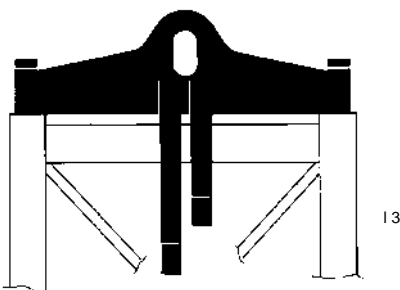


Lifting with crane

A 4.5 m **(15 ft.)** platform with mobile chassis (base unit) weighs approx. 5000 kg **(11000 lbs.)** including 13 mast sections.

A 4.5 m platform with mast pedestal (base unit) weighs approx. 3500 kg **(7700 lbs.)** including 13 mast sections.

With a suitable crane connected to the lifting yoke at the mast top, the platform with erected mast can be lifted with a crane. The lifting yoke is designed for a maximum load of 6000 kg **(13200 lbs.)**. **The platform must be balanced.**



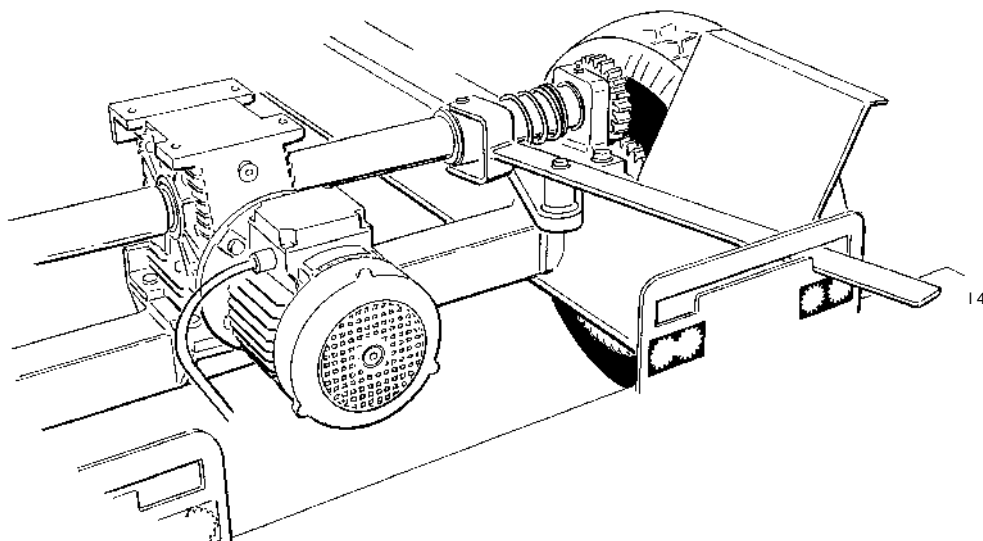
Horizontal movement with self-powered machinery

The mobile chassis for single mast platform can be provided with its own drive unit intended for moving over short distances on the job site. The platform with erected mast can be moved if the requirements under the heading "Towing of platform with erected mast" are fulfilled.

During transport no other load, other than platform parts and mast sections are allowed on the platform. The platform must be lowered to its bottom position and rest on the rubber buffers.

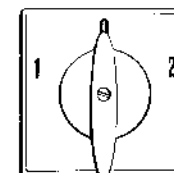
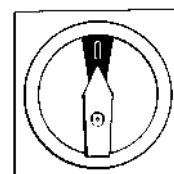
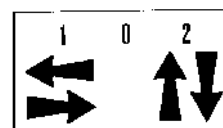
The drive wheels can be individually engaged and disengaged by means of two levers connected to the drive shaft.

CAUTION: When driving around curves only one drive wheel must be engaged (the drive wheels are not equipped with differential gearing).



Before the drive unit can be operated the switch for either vertical or horizontal movement, inside the electric panel must be switched to position = "1".

The drive unit is operated by pendant remote control with pushbuttons for Forward – Stop – Reverse. The buttons are of type "hold to run".



15



WARNING!

Kick-back hazard.

Always use the extra support wheel for the chassis tow bar and do not walk next to the tow bar.

Can cause severe personal injury.



16



ASSEMBLY CONTROL – CHECK LIST

The assembly is to be carried out by trained/authorized personnel only.

Please mark with a cross to the right to confirm that:

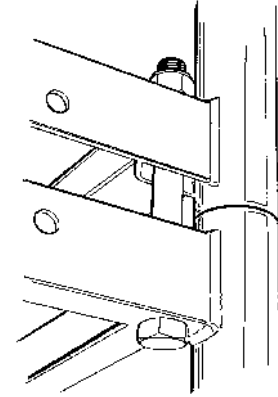
- | | |
|--|--------------------------|
| 1. the installation as in accordance with the latest instruction manual as it pertains to: | Yes |
| a) Foundation for outriggers. | <input type="checkbox"/> |
| b) That the outriggers are extended and locked. | <input type="checkbox"/> |
| c) The length of the platform. | <input type="checkbox"/> |
| d) The platform's widening regarding performance and choice of material. | <input type="checkbox"/> |
| e) Safety railings. | <input type="checkbox"/> |
| f) Mast ties. | <input type="checkbox"/> |
| 2. the load sign agrees with the actual installation (see Instruction Manual). | <input type="checkbox"/> |
| 3. all signs are legible (see Instruction Manual). | <input type="checkbox"/> |
| 4. visual inspection is carried out regarding mechanical damages on structural parts such as; | |
| a) Outriggers with jacks. | <input type="checkbox"/> |
| b) Chassis. | <input type="checkbox"/> |
| c) Platform. | <input type="checkbox"/> |
| d) Extending parts. | <input type="checkbox"/> |
| e) Machinery frame with machinery. | <input type="checkbox"/> |
| f) Mast. | <input type="checkbox"/> |
| g) Mast tie. | <input type="checkbox"/> |
| 5. mast protection is installed. | <input type="checkbox"/> |
| 6. service and maintenance is carried out according to latest Instruction Manual. | <input type="checkbox"/> |
| 7. drop test is performed. | <input type="checkbox"/> |
| 8. test run and inspection is performed on: | |
| a) Limit cams in mast top. | <input type="checkbox"/> |
| b) Limit cams at ground landing. | <input type="checkbox"/> |
| c) Stop button(s). | <input type="checkbox"/> |
| d) Gate switch. | <input type="checkbox"/> |
| e) Horizontal levelling device – on twin mast installation. | <input type="checkbox"/> |
| f) No obstacles within the working area of the platform. (There MUST NOT be any obstacles). | <input type="checkbox"/> |
| 9. test sliding is carried out. | <input type="checkbox"/> |
| 10. Check that: | |
| a) there is an Instruction Manual/Operator's Manual in the documentation box. | <input type="checkbox"/> |
| b) there are cranking tools in the box. | <input type="checkbox"/> |
| c) there are sliding tools. | <input type="checkbox"/> |
| 11. Check that the area is barricaded and a sign displaying "Working Area" is in place. | <input type="checkbox"/> |
| 12. Check that the user has received information about safety and operating instructions, service and maintenance. | <input type="checkbox"/> |

Tightening torque

Recommendations according to the chart on the following page applies in general except for:

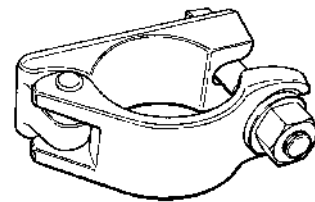
ALIMAK Mast bolt, dim. 1"UNC

- Torque : 300 Nm (200 lbf x ft)
- Spanner size : 1 1/2"



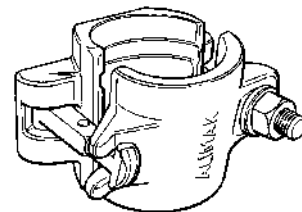
ALIMAK Scaffold clamp Ø 76 mm

- Torque : 150 Nm (110 lbf x ft)
- Spanner size : 28 mm



ALIMAK Scaffold clamp Ø 76 mm

- Torque : 220 Nm (163 lbf x ft)
- Spanner size : 24 or 27 mm



Recommended torques

The chart applies to galvanized screw and nut of strength class 8.8 – dry surface.

Dimension	Spanner size	Torque	
M 6	10 mm	10 Nm	(7 lbf x ft)
M 8	13 mm	24 Nm	(18 lbf x ft)
M 10	17 mm	47 Nm	(35 lbf x ft)
M 12	19 mm	81 Nm	(60 lbf x ft)
M 14	22 mm	128 Nm	(95 lbf x ft)
M 16	24 mm	198 Nm	(146 lbf x ft)
M 20	30 mm	385 Nm	(285 lbf x ft)